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EDITORIAL.

EUROPEAN CHRONICLE.

HYDRARTHROSIS AND HYGROMA.—The rebelliousness to treatment of dropsical conditions of articular and tendinous synovial bursæ is often for veterinarians a cause of great concern. While in many cases they only assume small proportions, which after a certain lapse of time do not prevent the animal from being useful, yet remain a permanent blemish, interfering more or less with its market value, there are many circumstances when the dropsical state keeps increasing, where the walls of the sac and their surrounding tissues become infiltrated and hardened, and where the affection is no longer an eyesore, but interferes with motion, gives rise to lameness, deforms the joint and the leg, and renders the animal entirely unfit for work. Many are the forms of treatment which have been patronized, but most of them have had for their object the removal of acute pains, or a certain reduction in the size of the tumor, and many also have been the failures which have followed the various applications of cold, of counter-irritation, of punctures, of cauterization, etc.

European veterinarians in France and in Italy have lately reported series of experiments that they have made which seem, by the results obtained, to indicate that new forms of treatment are advisable.

In the December, 1899, issue of the *Receuil*, are published attempts which were made on windgalls and articular thorough-

pins by Mr. Calvè. He has resorted to three methods of operation: (1) By obtaining *cutaneous cicatricial bandage* only, in removing a flap of skin on either side some 10 or 15 centimeters wide, and sewing the edges together. The cicatrix forms a compressing bandage. This method has given him only doubtful results. (2) By obtaining a *double cicatricial bandage*, by excising a flap of skin as in the first case and also one from the cellulo-aponeurotic coat which separates the skin from the synovial tumor. The aponeurosis is sewed up with catgut and the skin with hairs of Florence. Out of four cases, three gave him quite satisfactory results, a marked reduction in the size of the synovial enlargement. (3) By a third method, the experiment was carried in, involving the walls of the synovial sac with the excision of the aponeurosis and of the skin covering, it not in excision but in the cicatricial pressure. In other words, by *suture of a portion of the synovial pouch itself*. The first two layers were incised as mentioned before, and then the synovial tumor carefully punctured. The synovia escapes, the membranous sac shrinks and becomes flabby, and then raised with a broad pair of forceps, when suture is made of its walls, involving a certain thickness of a fold of the serous. Sutures of the aponeurosis and of the skin are applied over it. Performed on two subjects, one gave excellent results, without complications, another died of lung trouble four days after the operation.

Through the *Clinica Veterinaria* we are told of a large series of experiments made at Milan by Prof. A. Baldoni. His experiments, however, differ from those of his French *confrère* in being applied to chronic dropsy of tendinous sheaths (hygromas). His mode of treatment is more serious, the object being to obtain a radical cure. It consists in the dissection of the thickened infiltrated structure under the skin and also the removal of whatever portion of serous membrane can be extracted. The experiments were carried on upon one case of enormous ectasia of the sheath of the flexor of the phalanges, communicating with the tibio-tarsal joint, and containing a semi-floating body; this animal had to be destroyed on account of the frac-

ture of the opposite femur, when improvement was already quite marked; a similar case of the tendinous sheath of the anterior extensor of one hind leg, with perfect recovery; a case of ectasia of the great sesamoid sheath of the hind leg, with much deformity, which proved unsuccessful and had to be destroyed; one of the sheath of the anterior extensor of the phalanges in a hind leg, with recovery; one of the flexor of the phalanges of the hind leg, with complications on the opposite extremity, with great improvement; one case of similar trouble also on a hind leg, with recovery.

If one takes into consideration the fact that all those cases were old, chronic, and with extensive alterations of structure, although they have not been all successful, they are, to say the least, very encouraging, and it seems very plausible to say that, applied upon cases of much milder form, and with more strict antisepsis, veterinarians may in some instances be justified in recurring to this new treatment.

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TUBERCULOUS MILK AND PRODUCTS.—Numerous experiments have been made upon the resistance of the tuberculous virus to the action of heat. The results that have been obtained have not always been alike, and marked differences have been observed, according to the mode of heating, its duration, the condition, quality and state of the virulent substance, and many other causes. Professor Galtier, of Lyons, has recently made special experiments on the milk and meat of tuberculous animals, and has come to the following conclusions:

Milk carrying tuberculous germs is not sufficiently sterilized by being heated at 70°, 75°, 80°, 85°; these temperatures acting for six minutes produce only a partial destruction or a more or less marked reduction in the virulency; introduced in that condition, even in massive doses, in the peritoneum of guinea-pigs, a more or less extensive tuberculosis may follow more or less rapidly; repeated ingestion of milk may be followed by tuberculosis, even when it has been exposed to a temperature of 75° from 5 to 20 minutes; therefore, to prevent all danger

more certainly, milk of suspects or tuberculous animals *must be* boiled before being consumed.

In relation to the consumption of tuberculous meat or products, previously sterilized by heat, Professor Galtier says that the accidental consumption of sterilized tuberculous products cannot promote toxic effects; that even repeated meals, composed of substances containing relatively great quantities of sterilized tuberculous lesions, do not give rise to any indisposition; that the ingestion of well cooked lesions and of their bacillus is without danger; that there is no danger to fear from the use of meats and organs of tuberculous animals *properly cooked*, even if they should be the seat of some lesions.

* * *

RABID LESIONS IN THE DOG AND THE POST-MORTEM DIAGNOSIS OF THE DISEASE.—Except the condition of the abnormal contents of the stomach of rabid dogs, no lesions are observed at the autopsy, and to establish a positive diagnosis it is necessary to resort to the inoculation into rabbits of the nervous substance of the suspected animal. Examination of the stomach is doubtful. Inoculation necessitates the loss of fifteen to twenty days. In both cases the indications for the necessity of early preventive treatment of a person who has been bitten are difficult to establish. At the Royal Academy of Medicine of Brussels, Mr. Nelis, of Louvain, has presented a report which throws an important light on the question of the diagnosis, in which he says that he has succeeded in establishing comparatively characteristic lesions of the nervous system of rabid animals. Those affecting the cerebral and spinal peripheral ganglion, consist in the *atrophy, invasion and destruction of the nervous cells by cells of neoformation which appear between the nervous cells and their endothelial capsule*. There is, then, a lesion, already mentioned by Babes, under the name of rabid tubercle, which has somewhat the same signification as the glanderous tubercle and the tuberculous neoplasia.

In controlling examinations made by Professor G. Hebrant, of the Brussels School, the lesion was found in the

cadavers of six dogs, in which rabies had been diagnosticated during life, and in 8 out of 12 suspected animals, 5 of which were confirmed by inoculation to rabbits.

From these observations it seems evident that the presence of this lesion is one which deserves great attention and ought to be inquired into by minute observation.

A. L.

ETIOLOGY OF CANCER.

The steady increase of cancer among both the human and animal species has of late directed the labors of pathologists and biologists in various parts of the world to attempt to arrive at a definite conclusion concerning the true causation of this most formidable disease. Whether the increase of cancer is due to the more exact scientific methods now employed in the diagnosis of the disease, and which renders its detection in the incipient form more easy than formerly, as is claimed by some investigators, and that hence the increase of the disease is more apparent than real, the unpleasant truth remains that cancer according to the latest mortuary statistics is⁶ on the increase, even after microscopy has permanently eliminated from the list of cancer many pathological conditions heretofore classed as cancerous, such as localized tuberculosis, actinomycosis, botryomycosis, etc.

The opinion hitherto nearly universal among pathologists that cancer was caused by a specific cancer bacteria belonging to the unicellular plants or Schizomycetes of the lowest order of the vegetable kingdom, is slowly giving way; because, in all the innumerable attempts that have been made to isolate such a specific cancer bacteria, failure has been met with, several different organisms being found in the cancerous neoplasms. The more rational theory of the etiology of cancer is, therefore, gaining way that cancer is caused by several different organisms belonging not to the vegetable, but the animal kingdom, and that these organisms undoubtedly belong to the order of *rhizopoda*, and class *mycetozoa*. Recent laboratory experiments have been carried out in which cases of undoubted car-

cinoma were produced in animals by the injection of culture medium secured from cancerous tissue containing the above animal parasites.

The ever increasing addition to scientific knowledge causes a constant changing of the line of demarkation between the animal and vegetable kingdoms, between whose border lands there lies a vast unexplored region; a sort of "No man's land" teeming with numerous and varied forms of organic life; many of these organisms are, no doubt, disease-producing, but of so minute a form as to be beyond the visual range of our most powerful microscopes. There is, perhaps, no field of original research that will so well repay the patient labors of the future pathologist and biologist as this field; or supply more lasting benefits to human and animal life.

W. J. M.

"THE COBBLER AND THE LAST."

A monthly magazine, called *The Stable*, published in New York City, frequently contains articles upon subjects allied to the veterinary profession, some of which emanate from reliable sources, but most of them are innocent of any real value, and are full of untrue and misleading statements. They are on a par with the *Journal's* alleged scientific editorials, one of which was recently reproduced in the REVIEW, wherein the membrana nictitans was stated as the cause of pinkeye in horses, for which its extirpation was advised. In the January issue of *The Stable* a leading editorial dealt with a crusade said to have been inaugurated in Chicago to compel owners of horses to have them properly shod, as great suffering was alleged to flow from this source. While there will scarcely be found any one with a knowledge of the subject who will dispute the general fact, we fancy the situation in Chicago is not as bad as the article makes it appear, and certainly the condition is little worse in the Windy City than in other large municipalities. And while the editor cries out in plaintive tones for reform in this direction, his learned suggestions would probably inflict more suffering upon the object of his solicitation than all the horseshoers

in Chicago combined. We select one paragraph from the article for illustration :

"The frog is a delicately constructed part of a horse's foot and should be protected by a well-balanced and nicely-fitting shoe. In the cases of thoroughbreds that wear the thinnest kind of plates—*plates that do not always keep the frog from contact with the ground*, we often read of paralysis setting in and, if the ill is not remedied, the horse goes lame and is unfit to run for the purse. Killing the nerve is a remedy that in the past has been applied by unscrupulous owners and the method was the *hot iron*. By the process the animal became dull to all pain in the hoof nerve centre and ran along as though he had never been abused. But a wise and humane law put a stop to 'nerving,' under penalty of severe punishment."

In its indignation against the horseshoers of Chicago for their ignorance and poor workmanship *The Stable* sounds an alarm that "if stringent measures are not at once adopted to protect horses against the incompetency of alleged shoers, the horseless vehicle would be a blessing." To show how perniciously the craft of Chicago are plying their murderous work, it narrates that "Dr. A. A. Locke, a veterinarian and horse dealer, selected 100 draft horses . . . and of them 43 were provided with shoes without proper calks, 15 with unbalanced shoes, of irregular weight and application, and 23 suffering from bad workmanship of smiths. Think of such a condition and then cry out against the automobile." It is advised that inspectors be appointed through municipal legislation, to examine the feet of draft horses, and to correct the evils so existent in that city. If such a ridiculous act were foisted upon the public, we sincerely trust, for the sake of our equine friend, that its enforcement will be placed in other hands than reformers of the school of which the writer of that editorial is a familiar example. With all the alleged incompetency of the horseshoeing fraternity, there is less danger of injury and suffering than from such brilliant ignorance as is displayed by asinine assumists of his type.

SECRETARY MORRIS, of the New York State Veterinary Medical Society, visited the REVIEW office during April, and was quite enthusiastic regarding the prospects of a great meeting at Ithaca next September. He is in communication with the Local Committee, and assures us that Chairman Williams is already laying the foundation for a grand clinical programme, demonstrating the most classical and practical operations of modern surgery. With important papers from members throughout the State, the meeting should be a valuable one, and it is earnestly hoped that the efforts being put forth will yield good results in an increased membership and augmented interest.

DR. ROBERT W. ELLIS contributes to this number a very thorough and interesting report of an extensive disease of the kidney in a horse. It is an object lesson to veterinarians, showing how much value a systematic investigation of such rare conditions will yield, and what an addition to professional knowledge may be made by carefully recording such observations through the medium of the journals.

ORIGINAL ARTICLES.

TEXAS FEVER.

EXPERIMENTS MADE BY THE MISSOURI EXPERIMENT STATION
AND THE MISSOURI STATE BOARD OF AGRICULTURE, IN CO-
OPERATION WITH THE TEXAS EXPERIMENT STATION, IN
IMMUNIZING NORTHERN BREEDING CATTLE AGAINST TEXAS
FEVER FOR THE SOUTHERN TRADE.

BY J. W. CONNAWAY, VETERINARIAN MISSOURI EXPERIMENT STATION,
AND M. FRANCIS, VETERINARIAN TEXAS EXPERIMENT STATION.

GENERAL OUTLINE OF THE WORK.

For many years Texas fever has been a serious obstacle to the growth of trade in blooded breeding cattle, between the Northern breeders and the Southern cattle raisers. The losses

from this malady in cattle shipped from the north are rarely less than forty per cent. and frequently seventy per cent., or more. The pressing need for some practical method of preventing these losses has led the Experiment Stations of Missouri and Texas and the Missouri State Board of Agriculture to undertake the experiments reported herein.

This coöperative work was begun in 1896, and is still in progress. The interests of the cattle industry demand that the results obtained up to the present time be presented in official form. There is probably much work yet to be done before the methods, which can now in careful hands be employed with a great degree of success, reach the perfection that is desirable.

The work reported herein includes:

I. Experiments to determine whether sterile blood serum of immune southern cattle contains any chemical substance of the nature of an antitoxin, or toxin that might be utilized practically in stimulating at least a passive immunity in susceptible cattle.

II. Experiments on immunizing cattle by infection with the micro-parasites of the disease by means of *tick-infestation*.

III. Experiments on immunizing cattle by infection with the micro-parasites of the disease through *blood inoculation*.

These will be discussed in the order named. Only a brief discussion of the first two lines of work will be given in this bulletin.*

The final results of the experiments on inoculation with sterile serum show that such material possesses no protective properties.

Immunizing by tick-infestation can be employed with success, but on account of the necessity of maintaining a quarantined pasture, and the necessity of hand-feeding in the case of calves of non-immune cows, this method is not as practicable as that of blood inoculation.

* The full details, temperature records, etc., of the first two lines of work will be given in the next Annual Report, for the benefit of those who are interested in these matters from the purely scientific point of view. These records would unnecessarily burden this bulletin, which is mainly intended to present results of practical interest.

In the blood inoculation experiments, over four hundred head of thoroughbred cattle have been used. The losses from inoculation and from subsequent exposure to infected pastures in Texas have been less than eight per cent.

The cause of "Texas fever," and the means by which it is transmitted, have been so fully presented in Experiment Station Bulletins, and in the agricultural press, that any extended treatment of these matters will be unnecessary for the purposes of this bulletin.

It will be sufficient to state that the cause of the fever is a minute parasite occurring in the blood of southern-raised cattle, but causing in these under ordinary circumstances no illness, these cattle being immune; but when transferred in any considerable numbers to the blood of northern-raised cattle, give rise in the latter to a serious fever.

The natural way in which these micro-parasites are transmitted is by means of the southern-cattle tick (*Boöphilus bovis*). The disease can also be induced artificially in susceptible cattle by hypodermic injection of infected blood from southern cattle.

I. EXPERIMENTS ON INOCULATION OF NORTHERN CATTLE WITH STERILE SERUM FROM IMMUNE SOUTHERN CATTLE.

These experiments were made to determine whether the serum of the blood of immune southern cattle contains any chemical substance, apart from the living organisms of the disease, that might be used in a practical way in bringing about immunity in susceptible cattle.

The value of such a material would be that the danger of the development of an acute fever that attaches to other methods, as "tick-infestation" and "blood inoculation," would be avoided. Moreover, the material could be transported and used at any distance without the dangers from septicæmia that are liable to arise from the shipment to a distance of blood containing the living parasites.

The discovery of the protective properties of the serum of animals made immune to certain diseases, as diphtheria and

tetanus, led to the somewhat broad statement by Behring, one of the chief investigators of serum therapy, "that if an animal has acquired immunity against a disease-producing micro-organism, or its toxins, the serum from the blood of the immunized animal will prevent the disease in another susceptible animal."

While Texas fever is due to a protozoan micro-parasite instead of bacteria, as in the case of diphtheria, the immunity attained on recovery from an attack of the disease appears to be as great as in the latter malady. And it was not unreasonable to suppose that, in the physiological processes by means of which immunity is established against Texas fever, some new product should be formed which might stimulate in the cells of a susceptible animal, a condition of metabolism like that of the cells of the immune animal, and thus establish at least a passive immunity that would tide the animal over the danger-period following tick-infestation.

The first experiment with sterile serum inoculation was made in the fall of 1896, on an eight-year-old cow. 200 c.c. of serum were inoculated subcutaneously during a couple of weeks previous to infesting her with ticks. After the infestation, this cow was inoculated with 80 c.c. more of serum. This inoculation began September 2d; the infestation was made September 16th, and the animal was kept under observation until November 2d, morning and evening temperatures being taken. During this time there was no elevation of temperature, except on the afternoon of 17th and 18th days following tick-infestation, 103.8 F. and 106 F. Outwardly, the animal appeared to be in perfect health throughout the experiment.

The following spring, in conjunction with the Mississippi Experiment Station, a lot of young cattle and one cow were inoculated at Enterprise, Mississippi. These had all sickened from accidental tick-infestation. Twelve other cattle had died, all but two of them being adult animals. All the inoculated animals lived. A full report appears in Bulletin No. 37, of the Missouri Experiment Station, where the method of preparing the serum is described.

These experiments were not regarded as conclusive, since the season of the year at which the work was done, and the youthfulness of most of the animals inoculated, might account for the result. In order to give the matter a more decisive test a larger experiment was planned for the following summer, and carried out in conjunction with the Mississippi Experiment Station in June and July, 1897. A full report of the results upon the cattle shipped to the Mississippi Station appears in Bulletin No. 42 of that Station. Only a summary is given here.

Eleven head were inoculated, eight of these at the Missouri Station before shipping, and three after their arrival in Mississippi. These cattle varied in age from one and one-half years to eleven years. They were inoculated daily with serum in doses of 40 to 60 c.c., according to the size of the animal. The minimum quantity injected into any one animal was 146 c.c.; the maximum quantity was 772 c.c. After tick-infestation, all of them suffered from acute attacks of the fever, and all except two of the younger animals (2 years old) died.

During the same summer five head more were inoculated at the Missouri Station, two mature cows and three yearling steers. The material used in this experiment came from different sources than that used in the Mississippi experiment—one lot was obtained from the Texas Station, and another from a Texan animal at the North. One cow received subcutaneously a total of 230 c.c.; the other one 420 c.c., in doses of 20 to 40 c.c., over a period of two weeks or more, immediately preceding tick-infestation. Both died from acute attacks of the fever, following tick-infestation. Not the least mitigation in severity of the attack appears to have resulted from the use of serum.

The three yearling Jersey steers were inoculated with doses of 10 c.c. to 40 c.c., over a period of two weeks; one steer received 144 c.c., another 320 c.c., and the third 180 c.c. All of these suffered from attacks of the fever after tick-infestation, but recovered. A check animal, not inoculated, appeared to suffer more severely. This animal, however, was somewhat less vigorous.

In addition to the serum experiments one cow was inoculated with 50 c.c. of blood from an animal recently dead from an acute case of Texas fever. A small quantity of formalin was added to destroy the micro-parasites. But little physiological disturbance was noted; indicating that no toxic substance was present. Bile from the same animal was used on another cow with like results. Both cows died from acute cases of the fever after tick-infestation.

While the desired economic end of this experiment was not attained, the data supplied in regard to the effects of tick-infestation are valuable in the experiments that follow.

It appears that so far as experiments have yet shown, the only way of producing immunity is through an actual attack of the disease, induced either by "tick-infestation," or by "inoculation with living infected blood."

II. EXPERIMENTS ON IMMUNIZING AGAINST TEXAS FEVER BY TICK-INFESTATION OF YOUNG CATTLE.

The fact has long been known to stockmen that calves are more resistant to Texas fever than mature cattle. The same fact has been observed in all scientific investigations of this disease where young and mature cattle were used. In the investigations of Smith and Kilbourne, into the nature and means of transmitting Texas fever, a large per cent. of adult susceptible cattle used in their experiments died when exposed to the infection, while only a small per cent. of the young animals succumbed. The case of the dairy herd at Enterprise, Mississippi (mentioned under "serum inoculation"), illustrates in a marked manner the greater resistance of young animals as compared with those more mature. In this lot were eleven head of grown cattle, four yearlings and twelve calves. Out of this number, all the grown cattle except one died; while two of the yearlings and all the calves lived. Those that survived had been grossly infested with ticks and suffered more or less from the fever. In the serum experiments of the following summer, the same difference was noted between young and old cattle in resisting the disease.

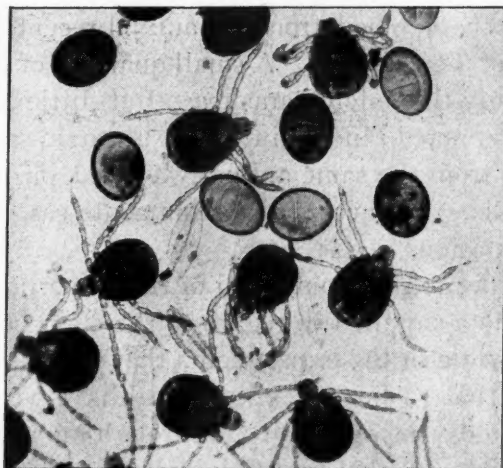


FIG. 1.—YOUNG FEVER TICKS—"BOOPHILUS BOVIS,"—AND EGGS—HIGHLY MAGNIFIED.

These observations led to the experiments to test the practicability of immunizing cattle on northern stock farms by tick-infestation. This work was begun in 1897, and has been continued to the present.

The following animals were used in the experiments: In 1897,

- No. 1.—"Jersey," a yearling Jersey steer.*
- No. 2.—"Spot," a yearling Jersey steer.
- No. 3.—"Red," a yearling Jersey steer.
- No. 4.—"Fawn," Jersey steer, 10 months old.
- No. 5.—"Durham," Shorthorn steer, 14 months old.
- No. 6.—"Estes," grade Shorthorn bull, 2 months old.
- No. 7.—Jersey bull calf, 6 weeks old.
- No. 8.—Jersey bull calf, 5 weeks old.
- No. 9.—Jersey bull calf, 3 weeks old.
- No. 10.—Jersey bull calf, 3 weeks old.
- No. 11.—Jersey bull calf, 3 weeks old.
- No. 12.—Jersey bull calf, 2 weeks old.

* Nos. 1, 2 and 3 were also used in the "Serum Experiments."

In 1898, all the above except Nos. 4, 6, 11 and 12 were reinfested and the following animals were added to the experiment :

No. 13.—Holstein heifer "Bessie," 10 months old.

No. 14.—Holstein heifer "Beauty," 10 months old.

No. 15.—Jersey bull calf, 4 weeks old.

No. 16.—Jersey bull calf, 2 weeks old.

No. 17.—Jersey bull calf, 3 ½ weeks old.

No. 18.—Jersey bull calf, 5 weeks old.

No. 19.—Jersey bull calf, 3 weeks old.

No. 20.—Jersey bull calf, 5 weeks old.

No. 21.—Jersey bull calf, 3 ½ weeks old.

In 1899, six animals of the first group (Nos. 1, 2, 3, 5, 7 and 8), were reinfested for a third season.* In the second group Nos. 13, 13, 15, 16, 19 and 21, were reinfested a second season, and all have lived.

Certain individuals and groups in the above lot of animals were treated differently ; some were grossly and continuously infested, while others were but slightly or intermittently infested. It will be of interest to notice briefly these individual cases and groups.

TICK-INFESTATION OF YEARLINGS.

No. 1, "Jerry," was infested July 27, 1897, with several hundred fever ticks. These had nearly all matured and fallen off by September 1st. The steer remained free from ticks for about a month, and was again reinfested with several hundred more ticks. In addition the steer became grossly reinfested from the pasture. An acute attack of the fever resulted from the first infestation ; the morning temperature on the twelfth day after infestation was 105 F. and continued high for four days when it fell to normal. The afternoon temperature during this period ranged from 105 to 107 F. The steer fell off some

* All of these except No. 7, were shipped to the Texas Experiment Station, where they have been on infected grounds since January 1st, without showing any signs of fever. Temperature records and blood examinations were made twice a week. No. 7 was kept at the Missouri Experiment Station and given a severe test without showing any fever. See cut p. 15.

in flesh, became somewhat gaunt, but continued to graze. He made a good recovery, and at the time of the second infestation was lively and apparently in perfect health. The second more gross infestation produced no fever. Temperature observations were continued until November 1st. The animal went into winter quarters in excellent condition. This steer was infested in a different pasture from Nos. 2, 3, and 4. He was grossly reinfested the following summer and fall (1898) but showed no evidences of fever. Through the spring, summer and fall of 1899 he was again exposed to a presumably more severe infection in the quarantine territory, at College Station, Texas, and remained in perfect health.

The following group of yearling Jersey steers: No. 2, "Spot"; No. 3, "Red," and No. 4, "Fawn," were infested August 28th, 1897, with about 200 ticks each. They had also been placed a week before upon a pasture that proved to be grossly infested with ticks (from "single dipped" Texas cattle). Morning and evening temperatures were recorded from date of infestation until November 1st. A few mature ticks were found September 13th, twenty days after infesting. In a few days mature ticks were numerous, and continued so for a week. On September 26th, these steers were almost free from the ticks coming from the artificial infestation. This infestation produced scarcely any elevation of temperature in Nos. 2 and 3. In No. 4, several high afternoon temperatures had been observed, but nothing indicating a continuous fever period. October 29th, it was observed that the animals were well infested with small ticks picked up from the pasture. This infestation proved to be more severe. From October 4th to 9th, No. 2, "Spot," had a fever period, morning temperatures ranging from 102.7 to 105.7 F., and evening temperature for two weeks from 103.7 to 107.7 F. The animal became gaunt, lay down much of the time, and had little appetite. October 11th, the morning temperature was normal and continued so until November 1st, when regular observation ceased. A few immature ticks were found on this steer as late as January 3d. No.

3, "red," showed no outward signs of fever until October 20th, but from October 7th to 16th the evening temperatures had ranged from 103.5 F., to 106.4 F., and the morning temperature from 101 to 103 F. The calf had fallen off some in flesh. The morning temperature October 20th was 103.3; evening temperature, 106.4, calf stupid. October 21st, morning, 104; evening, 106.2, calf sick. October 22d, morning, 104; evening, 105.9; calf dull and gaunt. October 23d, morning, 101.5; evening, 105.4. October 24th, temperature normal. Calf has been grossly and continuously infested with ticks.



FIG. 2.—GROUP OF JERSEY CALVES AT TIME OF FIRST TICK-INFESTATION.

No. 4, "Fawn." This calf showed but little signs of fever from the first infestation. From August 1, to September 25, the morning temperature remained normal, and only an occasional high evening temperature occurred. On September 26th, the evening temperature arose to 104 F., and from that date until October 30th, the evening temperatures remained high; ranging from 103.7 to 106.3 F., only an occasional normal temperature being observed. From the 23d to the 29th the temperature ranged from 103 to 103.6, but through the greater part of the experiment, the morning temperatures were normal.

The continuous and severe infestation to which these calves were subjected from running on grossly infested pastures caused them to fall off greatly in flesh. They went into winter quarters in bad condition, with skin harsh and scurfy. This condition was, however, in part due to lack of nutrition; the pastures became dry and short. On December 31st, calf No. 4 died from

accident, having been horned into the manger, probably by a Texan cow that was kept in the same pen. No. 2 and No. 3 improved during the winter, and were put on grass in the spring in fair condition.

In July, 1898, both were reinfested with Texan ticks. These matured, and the steers became grossly reinfested from the pastures. Neither of these animals showed any signs of sickness during the season. They were never "off feed" and were in good condition at the beginning of winter. These two steers were shipped with others to the Texas Experiment Station on December 28, 1898, and have been on infected grounds since January 1st, 1899. No signs of fever have appeared. The temperature records and tests of the blood by means of the hæmatokrit show that these steers were fully immunized by the tick infestation at the North.

No. 5, "Durham," shorthorn steer, 14 months old. This steer was used as a check on seven head of double dipped Texan cattle. He was exposed from July 19th to October 27th, 1897, and during this time was observed almost daily for ticks. The dipping proved to be so nearly perfect that during the summer and fall only five ticks were found on this animal, and but ten ticks on the seven head of Texan steers, from infection of the pasture. No doubt many ticks escaped observation, but it is safe to say that during the entire season not more than 25 or 50 ticks infested this steer. This very mild natural infestation gave rise to no serious symptoms, and the animal remained in good condition. This steer was reinfested the following year to determine whether so mild an infestation had made the steer immune. On July 21st, 1898, several hundred Texas ticks were applied to this animal, and later in the season he became grossly infested from the pasture. Ripe ticks were found 23 days after infestation. The animal showed a few high temperatures and some depression on hot afternoons in July and August, but no serious illness occurred. The steer did well through September. In October he fell off some on account of short pasturage, and gross tick infestation. At the close of the

season the steer was fed a while, and was shipped in fair condition, on December 28th, to the Texas Experiment Station, where he has been exposed since January 1, 1899, without showing any signs of fever.

The two Holstein heifers, Nos. 13 and 14, about 10 months old, were infested August 13th, 1898, with 300 ticks each, and later they became grossly infested from the pasture. The first infestation was made during the warmest part of the summer. The heifers showed high evening temperatures through the hot weather. Heifer No. 14 suffered more severely, and in October developed an acute case of the fever, dying October 8th, 56 days after the first infestation. The post-mortem showed the usual lesions of Texas fever, such as bloody urine in the bladder, softened spleen, yellow liver, and bloodless condition of the flesh. This heifer was also found to be affected with "Hoose." The small bronchi were badly infested with the parasitic worms of this disease, and pneumonic areas were found in the lungs.

The long time that elapsed between the first infestation and the death of this animal, makes it probable that she would have lived if she had not been subjected too soon to the gross tick infestation that occurred on the pasture, and had not been suffering from another disease.

The Holstein that survived (No. 13) was also affected with lung worms, and did poorly through the winter, but improved when put on pasture in the spring. She was in fine condition June 21, 1899, when she was reinfested with several hundred ticks. Later she became well infested from the pasture. In addition to the tick infestation, this heifer was inoculated June 15th with 6.5 c.c. infected blood from a Texan cow, and again on August 4th with 8 c.c. This severe test caused no fever. The heifer has been in the best of health and condition throughout the season.

TICK-INFESTATION OF YOUNG CALVES.

Calf No. 6, 2 months old, was purposely infested (July 28, 1897) with a very large number of ticks, to test the effect of

sudden gross infestation on a young animal. The number of ticks applied was doubtless far greater than would, under natural conditions, infest an animal at one time. On the morning of August 6th, nine days after infesting, the calf had a temperature of 106.2 F. On the following day, 107.2 F., and death resulted August 10th, thirteen days after the ticks were applied. A post-mortem showed lesions of Texas fever. This experiment shows that sucking calves, which ordinarily are quite resistant to the disease, may succumb if excessive infestation occurs.

In the fall of 1897, six young Jersey bull calves, 2 to 6 weeks old (Nos. 7, 8, 9, 10, 11, 12), were put in a quarantine pen and infested artificially with from 25 to 50 Texas fever ticks. After these had matured and dropped off, the calves were infested again with from 75 to 200 ticks. These also matured. Some of the calves for a short time were off feed and a little dull and gaunt, but at no time during the infestation period was any seriously sick. The thermometer showed some fever in each calf. This, however, was of short duration and of mild character. From fear of carrying the infection into the barns, these calves were kept in the quarantine pens somewhat late in the season, and were exposed to a few sharp winter storms, from which they all suffered severely, and two (Nos. 11 and 12) died. The post-mortem showed no indication of Texas fever. The four remaining calves were put in the barn December 12th, and in a few weeks were in excellent condition.

These calves were infested again the following summer, after they had been free from ticks seven months. Bull No. 7 was infested July 28, 1898, with about 400 ticks. July 7th, bull No. 8 was infested with 300 ticks, and again on July 7, with 100 more. Bull No. 9 was infested July 7, with 100 ticks, and again September 10th, with 500. Bull No. 10, with 200 ticks on July 28th, and again on September 10, with 500. The first crop of ticks matured without any of the bulls showing a fever period, only an occasional high temperature was noted on very warm days. On the 28th of August, No. 10, after becoming

quite free from ticks, was somewhat gaunt and had diarrhoea, but appeared quite well in a few days.

In addition to the artificial infestation, these bulls became grossly infested with ticks hatched on the pastures.

As the result of excessive tick-infestation, and lack of proper nourishment from dry condition of the pasture, these young bulls fell off considerably in flesh, and in September, one of them, No. 10, developed an acute attack of the fever. The bull was found sick on September 30th, and died during the day. The post-mortem showed typical lesions of Texas fever.



FIG. 4.—JERSEY BULL NO. 7. CALVED AUGUST, 1897. FROM A GROUP INFESTED THREE SEASONS.

On June 21st, 1899, bull No. 7 was artificially infested for the third season with several hundred ticks, and later became grossly infested from the pastures and was not free from ticks until October 1st. To test the immunity of this animal more

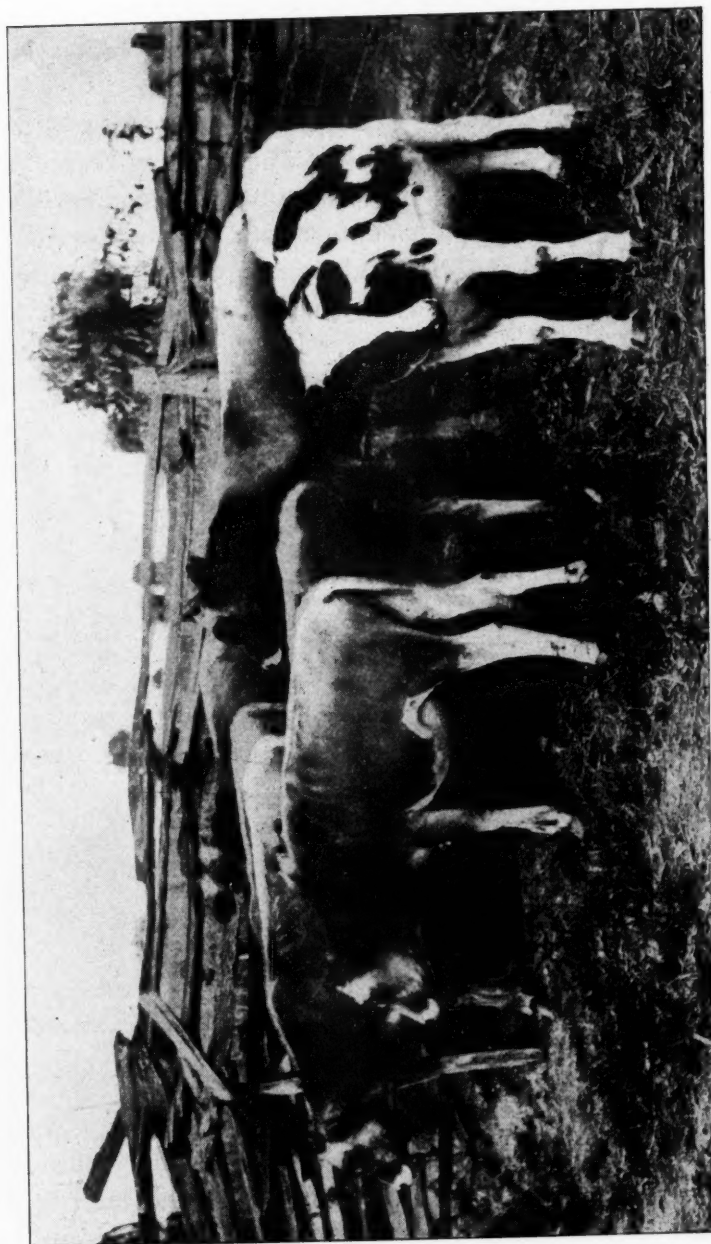


FIG. 3.—GROUP OF CALVES AT CLOSE OF SECOND YEAR'S INFESTATION.

severely, he was also inoculated with large doses of infected blood from a Texas cow. A dose of 7.5 c.c. was given June 15th, and a second dose of 10 c.c. August 4th. Daily temperature records were kept and during this time no rise of temperature indicating a fever period was shown. The blood was tested from time to time by means of the hæmatokrit to determine variation in the percentage of corpuscles; but little variation from the normal was observed. The bull appeared to be in perfect health during the entire season. A picture of this bull as he appeared at the close of the experiment is shown on page 15.

Bull No. 8 was shipped to Texas, December 28, 1898, and has been exposed to the natural infection on a pasture at College Station since January 1, 1899. This animal has remained in perfect health throughout the season. Temperature records and blood examinations were made twice a week.

Bull No. 9 was not reinfested the third season, but was killed March 20th, for a class demonstration, as the calf was affected with "Hoose," "verminous bronchitis." The post-mortem showed the parasitic worms of the disease almost plugging many of the small bronchi.

Another group of Jersey bulls (Nos. 15, 16, 17, 18, 19, 20 and 21) were infested with Texas fever ticks September 23, 1898. From 50 to 100 ticks were applied to each, and they matured on all the bulls. Four of the bulls showed scarcely any rise of temperature, while three showed more or less fever. All the latter had diarrhœa, no doubt in part due to change of food, from early weaning. No. 19 was quite sick, had bloody diarrhœa, but recovered. One, No. 18, died from scours, January 16, 1899, 115 days after the infestation; the post-mortem showed no evidences of Texas fever. All the other calves passed the winter safely, and, with the exception of No. 20, were well infested the following season, Aug. 1st to Oct. 15, 1899. No. 20 died from some unknown cause in the spring of 1899, after being put on pasture. As this death occurred before any of the calves had been reinfested and the pasture was shown to be free from ticks, the death could not have been due to Texas fever.

In addition to the tick infestation, all the calves were inoculated with infected blood. June 15th, previous to the second period of infestation, 3 c.c. of blood from a Texas cow was injected subcutaneously into bulls Nos. 15, 16, 17 and 21; they were again inoculated on August 4th with 5 c.c. each from the same animal.

No. 19 was inoculated June 13th with 4 c.c. from a native recovered cow, and six days later infested with several hundred ticks. June 29th, 16 days after the inoculation and 8 days after tick-infestation, the calf appeared to be in good health, the temperature was normal, and the percentage of blood corpuscles from hæmatokrit readings was 36 per cent. (about normal). On July 6th, 23d day after inoculation and 15 days after tick-infestation, the percentage of corpuscles had fallen to 20 per cent. On July 8th, the hæmatokrit reading was 13 per cent., the morning temperature 104.9, and evening temperature 106.5 F.; ticks in second moult, animal off feed, sluggish and gaunt. This condition appears to have arisen from the tick-infestation rather than from the blood inoculation. No rise of fever was noted at the usual period after inoculation. This calf was a little dumpish all summer, but has fed well.

None of the other calves showed any outward symptoms of illness apparent to the average observer; they were never off feed; the thermometer, however, showed that all of them had some elevation of temperature during the season and there was considerable destruction of blood corpuscles, as determined by means of the hæmatokrit. Bull No. 15 showed a diminution of corpuscles from 37 to 18 per cent.; No. 16, from 44 to 20 per cent.; No. 17 fell to 24 per cent.; No. 21 showed but little diminution in percentage of corpuscles. The greatest fall in percentage appeared to result not from the inoculation and earlier tick-infestation, as it occurred later in the fall after the pastures had become dry and grass scanty, and ticks more numerous on the pasture. All these calves had about regained the normal percentage of corpuscles at close of the experiment.

SUMMARY AND CONCLUSIONS. (TICK-INFESTATION.)

It will be seen from the history of the above 21 head of young cattle that but one died from an acute attack of the fever within the usual period of 12 to 20 days following tick-infestation, and that this one, No. 6, a two months old calf, was purposely infested with an excessively large number of ticks. The first crop of ticks matured on all the other cattle, and but few of the animals showed any distressing symptoms of the fever. The yearlings that were mildly or intermittently infested the first season did not suffer the profound nutritive disturbances noted in others that were grossly and continuously infested. (Contrast steers No. 1 and 5 with steers No. 2, 3 and 4, all infested in 1897.) Young calves, from 2 to 6 weeks old, infested mildly in the fall, suffered but little from the infestation, but were not fully immunized against the effects of gross infestation the following year, after being free from ticks for seven months. Bull No. 10 died from relapse in the fall of 2d season (1898), and No. 19 was quite ill his second season (1899), and others of the 1899 group while apparently in good health showed considerable destruction of blood corpuscles. An acute fatal relapse occurred in two animals (Nos. 10 and 14) following gross secondary infestation; both had matured ticks earlier in the same season and one (No. 10 mentioned above) had carried ripe ticks the previous fall. Lack of proper nourishment and a concurrent disease are to be regarded as contributing largely to these relapses.

Animals that had been well infested with the fever ticks at the north, proved immune when exposed to the more prolonged infestation occurring at the south.

Five head of the experiment animals died from other causes than Texas fever. Jersey bull calves from the dairy herd were mainly used in the experiments. They were taken from the mother quite young and fed by hand. Their care through the winter was such as is given ordinary stock cattle, and not that which is given to breeding animals intended for sale. These losses, largely preventable, would probably not have been so

great in calves of the beef breeds intended for sale, instead of experiment.

A quarantine pasture has been maintained at the Missouri Station through four summers, and during this time no deaths have occurred in the farm cattle grazing in an adjacent pasture, separated by a space of fifteen feet.

From the above we may conclude that complete immunity is not acquired by the young animal through a single mild infestation with fever ticks, but that the immunizing process is a gradual one requiring several months for its completion.

The preferable way of effecting immunity by this method would be to give a mild infestation as early in the season as possible, and reinfest at intervals with a gradually increased number of ticks; permitting the animal to be free from ticks for a short time before reinfesting and seeing that all fever from the previous infestation had passed. Gross reinfestation from the pasture, before the animal is ready to bear it, may be prevented by one change to a clean pasture during the season.

One of the most important requisites in immunizing is that the calf be well nourished throughout the immunizing period. Otherwise stunting of the animal will occur, and occasionally a fatal relapse.

From the fact that exclusive hand feeding is not desirable in raising calves of the beef breeds, the tick-infestation method cannot come into large use in immunizing these animals, unless the breeder finds it profitable to maintain a herd of immune cows. There are no very serious difficulties in the way of maintaining infected pastures on northern stock farms, and the animal that has stood the test of tick-infestation at the north carries with him his own certificate of immunity, namely, the ticks themselves or their ineffaceable scars.

The blood inoculation method to be described may however meet all requirements.

(To be continued.)

A PERINEPHRITIC ABSCESS, WITH HAEMORRHAGIC NEPHRITIS.

BY ROBERT W. ELLIS, D. V. S., NEW YORK UNIVERSITY (VET. DEPT.),
WITH REPORT OF MICROSCOPICAL AND CHEMICAL EXAMINA-
TIONS, BY EDWARD K. DUNHAM, M. D., NEW YORK UNI-
VERSITY MEDICAL SCHOOL (DEPT. OF PATHOLOGY).

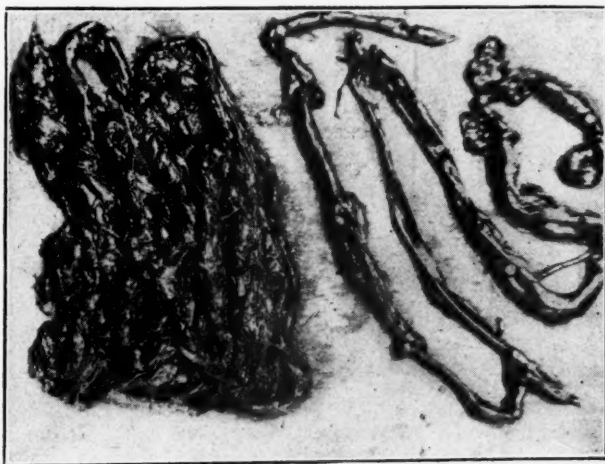
Was called on Sunday, Nov. 5, 1899, to see a chestnut gelding, eight years old, about fifteen and one-half hands high, weighing about ten hundred and fifty pounds. A "mustang," but of good form and disposition; had been in service two years. This animal was reported as having been passing clots of blood by the urinary passages for a week previous to the date of my call, and I was shown a clot about the size of a hen's egg, which he was said to have passed a short time before I arrived at the stable. This, I was informed, came after considerable forcing, and was followed by micturition. The horse's general condition was seemingly all right, and, attributing the condition to an inflamed, congested, or possibly lacerated state of some portion of the mucous membrane, either of the urethra or the bladder, possibly due to calculus of the latter, and being in a very great hurry at the time, I prescribed $\bar{3}$ ss doses of sanmetto, every six hours, until I should return on Tuesday, the 7th. On the day intervening between the 5th and 7th, a bottle of the horse's urine was sent to my office, blood-stained, but containing no clots.

When I saw the horse again on the 7th, however, I was shown a string of clotted blood, in one piece, eighteen inches long by perhaps one half an inch thick, tough enough to handle freely without breaking (I nailed them to a board and sat it upright to photograph them), and was again informed that the animal, after straining for a time, had passed this string, and then his urine. I then came to the conclusion, upon the strength of this information, and what he had told me the first day (what a pity we cannot get our information first-handed from the patient), that the difficulty undoubtedly lay above the

urethra, possibly in the bladder. I reasoned that as the length of the blood-clot closely approximated that of the urethra, that that organ was probably the mould in which the clot was formed, between the time it left the bladder in the form of blood and the time when it was forced out immediately preceding micturition. You will remember that the attendant had insisted that the blood clots were forced out after considerable straining each time, and immediately followed by micturition, which would prompt the inference that the clotted blood clogged the duct through which the urine was to escape from the bladder. Stone in the bladder having been suspected as a possible cause of the hæmorrhage, a rectal examination of the bladder was made, which revealed nothing abnormal with that organ. Direct treatment to the walls of the bladder was now decided upon in the form of astringent douches. Accordingly a rubber tube was slipped on the end of a catheter, a funnel attached to the other extremity of the tube. The catheter was now passed, occasioning no pain or inconvenience to the animal whatever, the funnel being elevated above the horse's back, a gallon of alum solution at a temperature of 100° F. was allowed to flow into the bladder. This solution was retained for a few minutes, when the tube was removed and the contents of bladder allowed to flow out again, through the catheter; but, strange to say, as clear as when it entered it; at least so far as any trace of blood was concerned.

The next day the douche was repeated; but instead of evacuating the bladder through the catheter, as on the previous day, the catheter was immediately withdrawn, and after retaining the douche for a few minutes, the horse placed himself in position to urinate, and the solution again came away clear, and after it (as though impelled by one of those spasmodic movements which usually terminate micturition) came a blood clot, measuring about twenty-four inches in length and of the same thickness and texture as the one described. I might add to their description, to make it more complete, that on making a section, an extremely thin membrane appeared to envelop them,

which, however, was not detachable; but upon manipulation



BLOOD CLOTS.

proving to be simply more toughened by exposure to the atmosphere. This blood-clot *following* the evacuation of the bladder, and *not* preceding it, as I had been repeatedly informed, exploded the theory of the urethra having been the mould for the clots, and I was also convinced, the solution coming from the bladder both times unstained, that the trouble was not in the bladder, but in the kidneys; so that what was intended for a therapeutic agent, became instead a diagnostic agent, and, as a consequence of this diagnosis, I gave a grave prognosis. At this juncture, I prescribed 3ii doses of potassii iodidum, three times a day, and requested the owner to let me have consultation upon the case, which he refused, saying he was satisfied that I was doing all that could be done. This I thoroughly realized, but as he still retained hopes, and I appreciated the gravity of the case, I was desirous, in addition to having some light shed upon the cause of the symptoms, of having my prognosis verified or strengthened, at least, by a second opinion. However, in the course of a day or two, as the condition continued, and 18, 24, to 40 inches of those strings of clotted blood were ready for me, each day when I called, laid out upon

boards, box lids, newspapers, etc., I suggested consultation again, to which he acquiesced, and Prof. James L. Robertson was asked to meet me at 4 P. M., Nov. 12, which he did.

Up to this date the horse, eating one day well and not so well the next, had not lost flesh or run down in condition to an appreciable extent, and showed no external change in form or outline (neither did he at any time, subsequently, for that matter). I explained the conditions that I had found, my suspicions from the history as given me, and their subsequent dismissal after an opportunity for personal observation, and new conclusions,



1, 1, Body of tumor. 2, 2, Sides of kidney. 3, 3, Point of incision, dividing kidney, left side being drawn away from right by a cord. 4, Pelvis of kidney. 5, Spleen, held in position by nail in upper extremity.

treatment, etc., up to the day and hour to Dr. Robertson, who, after a general examination, made rectal exploration, prompted by suspicion of tumor in the neighborhood of the kidney, which he was finally able to outline on the left side. My arms not being as long as Dr. Robertson's, I could not outline as much of the tumor, but could touch the most posterior point of it. The horse was then walked out into the yard, and the two sides compared, which appeared symmetrical, so far as the eye could appreciate. On being led back into the stable and placed in his stall, the horse urinated, and the expulsion of the urine was accompanied and followed by the passage of about forty-eight inches of clotted blood, moulded in perfect cords as before, half inch in diameter, which, together with the bloody urine, was caught in a stable pail. Into this peculiar mass my consultant, a teacher and practitioner for a quarter of a century, gazed long and earnestly, occasionally manipulating those long tough clots, and wondered how the horse lived, and looked so well. To me, after eleven years of uninterrupted practice, this sight, which I had repeatedly witnessed for several days, was strange; to Prof. Robertson, with more than twice as many years of practice and his quarter of a century's connection with the veterinary school, it was equally strange and puzzling. He confirmed the gravity of my prognosis, by saying, "Ellis, this horse will die of this thing before long, and then we will know something about it." He then suggested that I send the horse down to the college, which I finally induced the owner to do on the 17th, being Friday.

On Monday, the 20th, I was called up on the telephone, from the college office, and told that Dr. Coates desired to know whether I would permit an operation to be performed upon the horse, which had been entered there as my patient, and which he stated was in a critical condition; colic pains having set in that day, and he would probably die. It was explained further, that the operation in view was largely experimental, and done as a last resort; it having been suggested by H. Taylor Cronk, M. D., an instructor in both the medical and veterinary schools

of the New York University. I gave my consent, and requested that they notify members of the college faculty and such practitioners as they thought might like to be present. The time was set for 9 o'clock that night, and there were present Drs. Coates (chief surgeon of the College Hospital), Ryder, Bell, Robertson, Dickson and myself, as well as the students of the college.

The horse was very much emaciated since the last time that I had seen him, which was on the 5th, two days before his removal to the hospital. He was placed upon a table, and after being anæsthetized by Dr. Coates, Dr. Cronk made a transverse incision in the region of the left kidney, through which he passed his hand forward in the direction of the head, and came in contact with a large tumor; so large that he could not outline it entirely through the incision made, and invited inspection and manipulation of it by those present before proceeding further. After this opportunity had been availed of by the practitioners and students, it was agreed by the practitioners that the tumor could not be removed with the hope of saving the horse, so far did it extend forward under the ribs, and his destruction, to be followed by a post-mortem, was decided upon. The horse was pithed, after which two or three ribs were removed, and a tumor weighing approximately forty-five to fifty pounds and measuring four and a half to five feet in circumference, involving and embracing the kidney, was revealed, which was soon removed, together with the kidney and the spleen. Dr. Cronk then split the kidney and found in its pelvis three calculi, one the size of a hen's egg and two slightly smaller. While making this exploration of the pelvis of the kidney, the doctor's scalpel passed accidentally through it, into the cavity of the tumor, and half a gallon of most fœtid pus escaped (unfortunately the doctor did not escape the pus). The cavity of the tumor was then washed out and the tumor, together with the kidney and spleen, were placed upon the roof of the college building for safe keeping and cold storage until morning, when I took the photograph which accompanies this report in the college pharmacy. The tumor was then sent, at Dr. Cronk's

request, to Dr. Edward K. Dunham, Dept. of Pathology, Med. Dept. of New York University, and following is Dr. Dunham's report to Dr. Cronk:

NEW YORK UNIVERSITY.

THE UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE.

DEPARTMENT OF PATHOLOGY.

Carnegie Laboratory, 338 East 26th Street, New York City.

NEW YORK, January 6, 1900.

Dear Dr. Cronk:

Microscopical examinations have been made of (a) the kidney and renal pelvis, (b) the walls of the adjacent pus cavity, constituting the specimen from a horse received from you on Nov. 21, 1899. Chemical examination of the concretions contained in the pus cavity was also made, showing that they consisted almost entirely of calcium carbonate.

Renal Pelvis.—Edema of pelvic wall, without evidence of marked inflammation—epithelial lining of pelvis intact, save for slight swelling of epithelial cells (possibly post-mortem). A little blood and pus, with a few, desquamated epithelial cells, were lying in the pelvis. These may have come to lie there as the result of opening the renal pelvis at the same time that the pus cavity was opened.

Kidney.—Marked congestion; hæmorrhage into renal tubules, degeneration and desquamation of renal epithelium in some of the tubules. A little pus and cellular detritus in a few of the collecting tubules. In a few places diplococci and short threads of streptococci were present in these tubules.

Wall of Abscess Cavity.—Edema, purulent infiltration and occasional extravasation of blood into the fibrous tissue bounding cavity. Cavity filled with pus containing a little fibrin. In the abscess walls a few collections of small streptococci forming long chains were found. There were no evidences of tuberculosis. The purulent infiltration had, in places, extended into the adjacent renal tissue.

These results point, in my opinion, to a perinephritic abscess, extending into the kidney and occasioning a hæmorrhagic nephritis. It is not unlikely that the more acute manifestations are due to a recent infection with streptococci and that previous to that infection there was an abscess of long standing—due to some cause that cannot now be stated—and that the concretions were formed a considerable time before the infection of recent date.

Yours truly, EDWARD K. DUNHAM.

Now, in conclusion, just a few words as to the possible origin of this condition. I stated in the beginning of this report that this animal was what we call a "mustang" for want of a more proper name. In other words, he was a horse raised wild

upon the plains in a drove; his only acquaintance with man, prior to being "rounded up" and shipped East to sell, being the time that he was branded with a red-hot iron; hence his wild, terrified condition on arriving in civilization, where scores of men could come and look over the enclosure in which he was confined. I have seen many carloads of these animals sold in the upper part of Manhattan Island, and the handling is extremely rough. The animal to be auctioned off is driven from the main enclosure into a smaller one alone (or with one or two others that escape there with him), where he is sold under the hammer, and then allowed to pass out of this smaller enclosure into a narrow one just wide enough to receive him. Here he is roped about the neck and allowed to escape, but brought up as soon as he reaches the length of his rope. Now a "cow-boy" proceeds to place a halter on the frightened creature's head for the purchaser, which is accomplished by approaching him cautiously along the rope, the further end being wrapped around a tree or post to prevent his pulling back. As the "cow-boy" approaches with the halter the mustang sets himself against the restraining rope and throws himself violently to the ground in all sorts of positions; the rope about his neck in the meantime tightening, until at last, "choked down," as they term it, he is approached and the halter placed upon his head. During this process and the subsequent removal of these animals from the field, I have frequently seen them lose their balance and fall upon their back violently. It was, therefore, that I suggested to the owner of this horse that the trouble might be due to an injury received at that time, or during the subsequent breaking to harness, and this seems to be substantiated in Dr. Dunham's findings and might serve as a useful guidance to us in making diagnoses in this class of horses.

PARTURIENT PARESIS.

BY A. H. HARTWIG, M. D. C., WATERTOWN, WIS.

Read before the Meeting of the Wisconsin Society of Veterinary Graduates.

Since our last meeting, which was held at Madison, at which

I was requested to take up the subject of parturient apoplexy, or, as it has been recently termed, parturient paresis, I have watched with greater interest than ever the various theories advanced as to the pathology and therapeutical treatment of this disease.

Among the most popular of the day is that of J. Schmidt, but as we really do not know the true cause of this disease, the Schmidt theory would first appear as an empirical one. Though a little sceptical on this account, and of previous disappointments, I have concluded to give it a trial, and thus report the following cases :

No 1 (Fatal).—I was called to a five-year-old Durham cow, which was in fair flesh but a good milker. I found her in her stall at 4 P. M. She was lying on her sternum and not entirely inattentive to her surroundings, and would partake of food occasionally. I was informed that she gave birth to a calf the previous day. She would attempt to rise, but was unable. After a formal examination, I concluded that she had a mild attack of parturient paresis, and at once applied the potassium iodide infusion according to directions. Relieving her of the contents of the rectum, which was apparently normal, and placing her in a comfortable position, I left, giving orders to apply massage. On my arrival the next morning I found she was much worse, her neck arched to one side, and she groaned terribly. I concluded to repeat the dose, which I did, but not quite as strong a solution. I returned about six hours later, but saw no improvement. I then injected stimulants hypodermically, and asked the owner to report in the morning, when about eight o'clock he arrived with the hide, stating that she had died during the night.

No. 2 (Recovered).—This was an eight-year-old cow of native stock. I was called at ten o'clock in the evening and found her in a basement barn with her head turned to one side and occasionally stretching out all four limbs and groaning. She was entirely unconscious ; temperature $98\frac{1}{2}$ degrees. Though the weather was warm her skin was cold and shriveled, her

mouth was cold and the tongue paralyzed, the eyes were dim and when touched with the finger she would not attempt to close them. When examining the udder, I found a slight swelling in one quarter. Upon inquiring how long since the cow had come in, I was informed that her calf was eight weeks old, which was shown to me. I could not doubt the man's word, as I really believe he was sincere in his statement. You can imagine my astonishment to see typical symptoms of parturient paresis eight weeks after parturition. Not trusting my first conclusion, I again made a thorough examination with the same results. On account of the existing symptoms of mastitis, I was not warranted to apply the potassium iodide infusion and advised to apply friction to the exterior by means of straw wisps, which was done; also stimulating agents were applied both externally and internally, and the patient wrapped in warm blankets; the udder was frequently immersed in hot water during the night; also light massage was applied and the udder relieved of its contents as often as possible. On my arrival the next morning, my patient was resting easy and appeared much brighter. The next day she got up, and has ever since made a slow recovery, and is now giving a normal flow of milk. I am not surprised at her recovery, but have never heard of such a case eight weeks after parturition, and therefore bring it to your notice for discussion.

No. 3 (Recovered).—This was a very fat, shorthorn cow, six years old, had aborted the previous season and was dry for six months prior to her period of gestation. The first symptoms of the disease were noticed about eight hours before my arrival at the place, and she was suffering with a very severe attack. I informed the owner that the case was hopeless in my opinion, but was willing to try and help her as best I could. One hundred and fifty grains of the potassium iodide was dissolved and infused according to directions, massage applied, but no caffeine or other stimulants. This was twelve o'clock at night. I returned to the place at nine o'clock the next morning, and was informed that the cow was up. Upon

reaching the stable I found her standing at her manger eating, and occasionally bellowing for her calf. She soon regained her flow of milk, and is again at the head of the herd.

No. 4 (Recovered).—Was a six-year-old red cow, not very fat, with a mild attack. I was called two hours after its first appearance. Potassium iodide was administered as before; no stimulants. The animal made a nice recovery and was up in six hours.

No. 5 (Recovered).—A medium sized, well-fed cow, seven years old, with an attack of medium severity; treated with the potassium iodide; no stimulants; was up after twelve hours. Did not regain her regular flow of milk until several weeks later.

No. 6 (Fatal).—An eight-year-old cow in fair condition, not fat, but a good milker, was found in a pasture eighteen hours after the first symptoms were manifest; was completely paralyzed; her general appearance resembled that of a corpse; skin and extremities very cold; eyes wide open; head and legs stretched from her. She was not able to stir, but would utter loud, painful groans. She was brought into shelter, where we made her as comfortable as possible. Potassium iodide with mild stimulants were applied. After six hours she was resting easier, which was late at night. Upon my arrival the next morning, I found her in an orchard near by, picking an occasional mouthful of grass, but was very weak. The stimulants were kept up for several days and she was doing nicely. When calling four days after she had a normal appetite and appeared well, but had no milk. This remained the same until the seventh day, when she stopped eating and drinking, and died several hours after. I had no opportunity for an autopsy.

No. 7 (Recovered).—A very fat Holstein cow, seven years old. I was called five hours after the trouble began. The attack was quite a severe one. Potassium iodide infused; no stimulants. The patient was up in nine hours and made a rapid recovery.

In view of the above facts we must conclude that the potas-

sium iodide treatment is a vast improvement over previous results, and with careful observations and experiments we can no doubt improve on it. I will add that in case No 1, the massage was not applied regularly as directed, which might have made some difference in the termination of the case. I have also observed that thorough cleanliness and sterilization of the infusion apparatus must be maintained. Care should also be taken that the water used is pure and thoroughly sterilized in a clean vessel, as our clients are mostly farmers, who are not, as a rule, very particular in this respect.

DEPARTMENT OF SURGERY.

BY L. A. AND E. MERRILLAT,

of the McKillip Veterinary College, Chicago, Ill.

ANTISEPTIC WOUND TREATMENT (CONCLUDED).

Routine of Wound Treatment (Concluded).

Suturing Wounds.—Suturing the wound is the last step but one in its treatment. After the stitching is completed the whole procedure is perfected by the application of the final dressing, which is intended to prevent infection during the healing. There are other methods of closing wounds besides suturing (plasters and bandages), but none other is entirely practical in veterinary patients. Neither plasters nor bandages can ever be of much service where the parts are not perfectly quiet, and since it is not possible to induce absolute quiet in our subjects these methods might well be excluded from a discussion of veterinary wound treatment.

Silk, cat-gut, wire, cotton twine, kangaroo tendon and flax thread are the materials at one's disposal. Among the more delicate operations each may have its special indication, but in general practice none will be found to be more useful from every standpoint than Barber's Irish flax saddler's thread. This thread is stronger in single strands than any of the ordinary suturing threads and when used in double, triple or quadruple strands it will answer for suturing the very largest wounds. Another commendable feature is its small cost. One ball costing less than fifty cents should last the average veterinarian a year or more. The silk skeins are actually too costly for the veterinarian.

As sutures come in such close contact with the wound it is hardly necessary to reiterate that they should be possessed of absolute purity. It is not sufficient to soak them in antiseptics for a few minutes just before inserting them. Any experienced surgeon will vouch for the dangerousness of such a procedure. Stitches are such dangerous infection carriers and are imbedded on such a fertile media for pyogenic organisms that they should be cautiously disinfected. The veterinarian cannot well afford to purchase the safe aseptic stitching materials made up for the human surgeon, but may keep a small quantity on hand for special occasions; for example, in making an intestinal anastomosis. But for the ordinary indication a good method of keeping sutures is to wrap a quantity of the flax thread above mentioned on an iron bobbin and drop it into a small salt mouth bottle filled with formalin, 95 per cent. carbolic or 1 per cent. mercuric chlorid and keeping the end from falling into the bottle with the cork. In this way a large quantity of safe suturing thread is always on hand, and can be carried conveniently. After several months in such a solution the thread may decompose and lose some of its strength, but as the cost is so small that can be no great objection, in view of the fact that it is both an economical and practical method of preventing stitch supuration.

The reader must refer to works on surgery for a description of the various kinds of sutures. Here we can only refer to suggestions on their application so far as they concern the healing of the wound.

The edges of a wound to be sutured must always be closely clipped or shaved. The needle should always be passed from within outward and never from without inward if absolute asepsis is demanded. It has already been said and repeated that perfect asepsis of the skin is impossible as even the deep layers harbor dangerous organisms. Therefore the needle that passes from without inward may carry organisms into the recesses of the wound. To sew from within outward conveniently the thread is armed at each end to obviate rethreading after each insertion of the needle. In inserting interrupted sutures—the usual kind—all of the sutures are inserted before any one is tied, so that just before finally closing the wound it—stitches and all—can again be immersed with antiseptics to destroy any infection that may have been carried into the wound during the sewing.

The edges of a wound must be brought into perfect apposi-

tion and with as little tension upon the threads as possible. The skin of a wound that is a few hours old always curls inward and unless some care is exercised in stitching they will remain so after the stitches are tied. Bad healing, bursting of the stitches, etc., are often traceable to this cause. When a wound is swollen or is so located that it will require some force to bring the edges together the stitches must be inserted farther from the margin of the wound and must be placed deeper so that there will be enough tissue included to retain its vitality against the strangulating effect of the threads. In simple incised wounds of the skin one centimeter from the edge is sufficient, while in larger ones from two to four centimeters is none too far. As regards the depth of sutures it should vary from merely through the skin in simple wounds to the very depth of the deeper ones if deemed necessary to keep the walls in apposition until adhesion has taken place.

Where there has been no great amount of new tissue to form the sixth or seventh day will find the wound well healed, so the sutures might as well be removed. In the case of more extensive traumata, even if the edges have failed to adhere, their removal is advisable on the sixth or seventh day, for at this time they will be found too septic, or at least too suspicious, to warrant their further retention.

Protection Against Infection During Healing.—This step of wound treatment has been discussed in detail in the February and March numbers under the head of "*Occlusive Dressings*," so that little remains to be said. The difficulty of perfectly executing this step in domestic animal surgery has already been mentioned and repeated, yet in spite of the difficulty, veterinary wounds need never be left entirely unprotected. There is always a way, even if the covering is not absolutely occlusive. Fabric bandages are all that may be desired as far as the extremities are concerned, while dry antiseptic powders repeatedly applied, and viscid, sticky substances for wounds of the trunk will frequently give satisfaction. The principle that must never be lost sight of is to make the dressing as perfectly protective as possible without interfering with the drainage. A fabric dressing should be porous enough to promptly absorb the wound secretions if applied to a wound that will secrete much, while on the other hand, if little or no secretion is expected, it should be made perfectly occlusive. The same precaution must be taken in wounds that are protected with plasters. A simple one that will secrete but little may be entirely covered with col-

lotion or other similar substances and left to work out its own salvation without further attention, while the one that will exude freely must, in addition, be provided with an opening which is then protected by some kind of antiseptic wadding.

After Treatment of Wounds.—The wound that is protected with only a sticky plaster or a dry antiseptic powder needs daily attention. The covering must be repaired as fast as it cracks or falls off, and if there is a drainage wad it should be removed and replaced at least once a day, and the trauma cavity might at the same time be irrigated.

Wounds dressed with bandages are, however, different. The one that is not expected to secrete a great deal should be left unmolested until the seventh day, at which time healing will have advanced to a safe point. The only reasons for changing such a dressing before the sixth or seventh day are :

1. If there is evidence of failure, manifested by undue pain, swelling, bad odor, or undue secretion.
2. If the bandage became soaked with blood at the time of application, in which case it should be removed in twelve to twenty-four hours.
3. If the bandage becomes disturbed accidentally.

When fabrics are applied to absorb secretions as well as for protection they should be changed every twenty to forty-eight hours. It is often said that such bandages might well be left unmolested until the wound secretion appears at the surface, but the statement will not "hold water" in veterinary practice, however safe it is in human surgery. The skin surrounding the wound, no matter how carefully disinfected, is never strictly aseptic, and the organisms lurking therein find an exceptionally fine media to propagate and to guide them into the wound. At each dressing the wound and surroundings are washed, sprinkled with a dry powder, and then a clean antiseptic bandage readjusted. Usually, after twelve days of such treatment the wound may be safely exposed, or at least it may be treated with less care.

Finally, when the trauma cavity is filled with granulations cicatrization may be hastened by the application of astringent remedies, but this is seldom necessary in the case of wounds that have remained aseptic throughout. Exuberant granulations are the product of septic wounds only, but when they do occur it is essential to prevent them from growing beyond the skin level in order to lessen the size of the cicatrix. Alum powder, tannic acid powder or any of the well known astringent lotions

will usually serve the purpose. But when they fail actual cautery must be resorted to.

Aside from heat, boiling water and soap and water, which, in fact, are the most useful agents in antiseptic treatment, the following chemical substances are recommended as the most suitable antiseptics for veterinary purposes :

1. Mercuric chlorid solutions from 1% to 5%.
2. Iodoform.
 - (a) Iodoform sugar 5%.
 - (b) Iodoform ether 5% to 10%.
 - (c) Iodoform tannin 5% to 50%.
3. Europhen.
4. Carbolic acid 1% to 10%.
5. Boric acid.
6. Chlorozone 20% to 100%.
7. Zinc chlorid 1% to 5%.

Epitome.

1. Antiseptic wound treatment was first practised by Sir Joseph Lister, an English surgeon, in 1867. The principles he advocated and practiced have not changed to this day, but the details of their application have changed with the advancement made in surgical pathology.

2. Antiseptic treatment is not practiced to the extent it should be in veterinary surgery, largely because (1) surgery has not been taught as it should have been in the veterinary colleges, (2) even the leading veterinarians have heretofore dismissed the subject as impractical if not impossible, and (3) because the veterinarian is still harboring the false impression that the remuneration for surgical operations does not warrant the bother.

3. Antiseptic treatment is both possible and practical in most surgical operations and under most circumstances. It is seldom impossible and impractical to be clean, and cleanliness is about 90% of the battle.

4. The advantages of clean surgery are:—(1) The healing is prompt and therefore the patient is at work much earlier. (2) Septic diseases are obviated and hence deaths are fewer. (3) Operations which would cause death by the old method can be safely performed. (4) It induces the exercise of greater care and hence enhances the skill of the surgeon. (5) Its general adoption will be an important factor in the evolution of the veterinary profession.

5. The disadvantages are:—(1) The time required to pre-

pare for and perform antiseptic operations. (2) The additional expense and the limited remuneration.

6. Advantages of the veterinarian over the human surgeon are:—(1) The veterinary patient is usually healthy. (2) The large per cent. of the operations are performed upon perfectly healthy tissues. (3) Septic organisms are less viable in the blood serum of animals. (4) The veterinarian seldom operates on patients of low vitality nor upon patients at the very brink of death. (5) Stronger antiseptics can be used on veterinary patients.

7. Advantages of the human surgeon over the veterinarian are:—(1) The human patient is intelligent and is therefore capable of nursing his own wounds. (2) The operating room can be made more clean. (3) The habitat of the human patient (usually) is cleaner. (4) The impossibility of keeping the veterinary patient absolutely quiet and the difficulty of applying satisfactory dressings.

8. Begin at once to fear the danger of touching wounds with any substance not aseptic. Act under the supposition that septic organisms are everywhere, and that when they once find their way into a trauma they are not readily destroyed. It is much better to keep a wound aseptic than to depend upon the possibility of making it so.

9. Remember that the air of an operating room or operating place if free from dust is quite safe enough to perform the usual operation. It is not necessary to spray the room nor the environs of the operation as was once supposed.

10. Wash the hands clean and immerse them frequently in a 1-500 mercuric chlorid solution, but never manipulate a wound with the hands unnecessarily. If a metal instrument will do the work, keep the hands off, for in many veterinary operations it is difficult to keep the hands pure.

11. Boil metal instruments repeatedly, and when wiping them do not use a dirty towel. Carry them in a metal case instead of the old-fashioned leather ones. When they are laid out for an operation see that they are not placed upon a dirty board. A pane of glass well cleansed, a sterilized towel or a tray containing a strong carbolic solution will answer. If you disregard this step better give up the whole affair at once.

12. Never wash an aseptic surgical wound with an antiseptic solution. It is not necessary, and even harmful, and, besides, the antiseptic solution may not be pure as the wound.

13. Sutures, bandages and wadding can be safely sterilized

with strong antiseptic solution, 5 per cent. to 1 per cent. mercuric chlorid being the best. Be exceedingly careful with the sutures, as they penetrate deeply into the wound and are hence more dangerous than the bandages and wadding.

14. Apply the protective coverings as perfectly as the conditions permit, but do not permit them to interfere with proper drainage, as it is quite impossible to keep a poorly drained wound aseptic.

15. Learn to regard the item—pus—as you would tetanus, following an operation. Both result from the same bad technique, and the surgeon who has tetanus follow has made no greater error than the one whose wounds discharge a purulent secretion. Remember that all wounds secrete, but when the secretion is purulent the surgeon's methods are faulty. Do not, however, mistake the whitish secretion of granulating surfaces for the pus of pyogenic cocci.

16. By all means practice antiseptic treatment.

(*The end.*)

SURGICAL ITEMS.

"*Preparation*," "*Performance*," and "*After-Treatment*" are the three major divisions of all surgical operations. No matter how simple the operation is the veterinary surgeon can no longer afford to risk his professional reputation by making even the slightest error in *any* one of these steps. Intelligent and methodical execution of each step means good surgery, while slipshod methods will always savor of incompetence and empiricism.—(*L. A. M.*)

The large majority of writers, both European and American, on chloroformization, elaborate specially upon the time it requires to bring a horse to the surgical stage of anæsthesia with chloroform. The required time usually given is from 15 to 40 minutes. The shortest time recorded by Moller is 7 minutes in a 4-year-old horse with 35 grams of chloroform, while the average among 126 patients, stallions, geldings and mares of all ages, is from 18 to 22 minutes. These statements seem remarkable to me in view of the fact that I have never yet failed to bring a horse to the profound stage of anæsthesia in less than 3 minutes, and in many instances in 30 seconds. As the discrepancy in time is of course due to the different methods of administration, the question naturally arises, whether the "*slow*" method has so much advantage over the "*rapid*" as to warrant

the loss of so much time, or in other words "is the slow method the safest." There are of course occasional deaths from chloroforming domestic animals, but in the horse they should be few and far between, no difference what the method of administration is. The horse that is subjected to operative treatment is in 99% of cases in good general health; organic diseases of the heart are rare; he responds to a comparatively small amount of chloroform, he never has that "narcotized condition" of the nervous system caused by alcohol, morphia and other narcotics which in the human make chloroformization both difficult and dangerous, and finally the veterinary surgical operations are of relative short duration. With all of these advantages in our favor the dangers are indeed scarcely worth mentioning; so, therefore, to labor over a patient 20 to 40 minutes is taking an unnecessary precaution.—(L. A. M.)

"The teaching of practical surgery requires, in addition to the needed amount of lectures, such laboratory work as will best fit the student to discharge his duties as a learned member of his community. . . . A certificate of graduation from a veterinary school should at the present day be logically regarded as including a practical knowledge of surgery, and the school which fails to impart it robs the student, insults modern education, and degrades veterinary science. . . . We hope that the near future will see a thorough awakening in the methods of teaching animal surgery, resulting in better technique, better results and very much higher attainments in the profession at large."—(Prof. Williams in the March REVIEW.)

Commenting on the probable curative value of antistreptococci serum in the March REVIEW, Prof. Moore quotes the following from the report of a committee appointed by the American Gynæcological Society to investigate the subject: "Experimental work has cast grave doubts upon the efficiency of antistreptococci serum in clinical work by showing that a serum which was obtained from a given streptococcus may protect an animal from that organism, but may be absolutely inefficient against another streptococcus and that the number of serums which may be prepared is limited only by the number and varieties of streptococci which may exist." To this he adds: "The committee found nothing in the literature or in their own experience to indicate that its employment will materially improve general results in the treatment of streptococcus puerperal infections. If this be true in human medicine where, as I have already stated, there is a better knowledge of the action

of the streptococci, how can we expect better results from similar methods in veterinary medicine? Our own experiments suggest further, that the procuring of a serum of recognizable value from any virulent streptococcus is not in all cases, even experimentally, easily accomplished. It seems just, both to the bacteriologist and to the practitioner, that the investigations should be continued until we are in possession of more definite and trustworthy results concerning the action of the serums prepared from the different streptococci on the diseases produced by the same species, before veterinarians become too eager to risk their reputation or money of their clients in a general and unscientific application of these expensive remedies. The accumulated evidence at the present time points (1) to the probable high efficiency of certain antistreptococcic serums against the diseases produced by the same streptococcus, and (2) that these serums are likely to have little or no value in diseases caused by other streptococci or other genera of bacteria."—(L. A. M.)

EXTRACTS FROM EXCHANGES.

FRENCH REVIEW.

COMPLETE ŒSOPHAGEAL OBSTRUCTION BY AN ŒGAGROPILE [*By M. Misier*].—This is a rare case. A cow presented all the symptoms of œsophageal obstruction—tympanites, ptyalism, inability to eat or drink. After puncture of the rumen and failing to discover anything in the œsophageal groove, the author introduced a probang and felt a foreign body in the thoracic portion of the œsophagus, about 10 centimetres from the cardiac end. Unable to dislodge it unless great force be used, the owner, after giving his consent to resort to it, refused to have it done, and the cow died on the fourth day. At the post-mortem an œgagropile measuring 7 centimetres in diameter was found imbedded in the œsophagus, which it had considerably dilated.—(*Rec. de Med. Vet.*)

CONGENITAL INGUINAL HERNIA IN A TWO-YEAR-OLD COLT—BAYER'S DRESSING—RECOVERY [*By E. Marx*].—This subject has a hernia as big as a child's head, which has resisted all kinds of treatment—bandages, blisters, clamps, etc. As the animal was becoming unfit for work, the operation was decided upon as a last resort. The classic operation was performed, and after suture of the ring, abdominal wall and the

skin, made with all antiseptic measures to obtain cicatrization by first intention, the dressing of Bayer, described in the "Exercises of Equine Surgery" of Prof. Cadiot, was applied. During the fifteen days following the operation, the patient presented no alarming symptoms. After that time the dressing was removed and the wound appeared entirely cicatrized. The conclusions of the author are that surgical interference is after all the best mode of treatment for umbilical hernia, that it deserves entrance in ordinary practice, and that the dressing of Bayer must take the place of all circular bandages or any other applications which are less solid.—(*Rec. de Med. Vet.*)

A SUSPICIOUS CASE OF INOCULATION OF GREASE TO A ROOSTER [*By M. Biot*].—The case is very curious, and probably unique in scientific records. While making the post-mortem of a cow killed for pleuro-pneumonia, the author had his attention called to the case of a rooster which was sick with a disease, which, according to the owner, he had caught from a horse, which himself was suffering with grease of both hind legs. The rooster had lost all his flesh in about two weeks. In one of the interdigital spaces there was an ugly granulating wound, from which exuded a sticky, viscous fluid, having an ammoniacal odor analogous to that of grease in horses. The affection was not localized to the claw, and had a character of generalization: The eyes and nasal openings were discharging fully a fluid analogous to that of the claw in consistency, color and characteristic odor of the discharge of grease. However, the animal could eat with great appetite. He constantly remained lying with his head under the wing in such a way that his feathers were glued together by the discharge of his eyes and nostrils, and had a very offensive odor. The inoculation had taken place by the foot of the horse stepping on the claw of the bird.—(*Rec. de Med. Vet.*)

COLLECTION IN THE MAXILLARY SINUSES OF THE COW [*By Mr. J. N. Pries*].—After remarking that he has failed to discover this affection described anywhere, the author relates two cases of that affection. In the first he failed to establish the diagnosis, in the second post-mortem confirmed it. The symptoms he observed in the first case were: At first snorting followed by a species of coughing, with discharge of a mass as big as a hen's egg, formed of a fibrinous substance, odorless and reddish. The eyes are dull, crying, with discharge adherent to the cheeks. Transparent, viscous, yellow reddish discharge, sometimes mixed with gelatiniform clots and streaked with

blood, escapes from the nostrils. There is some roaring. The bony walls of the sinuses are normal and not painful to percussion; no swelling of the glands. The general condition remains good, appetite and rumination normal. The author considers that the diagnosis in the first case might have been made by exclusion. In the second there was no doubt about it. At the post-mortem of the animal the maxillary sinuses were found the seat of disease, the right being more affected than the left.—(*Rec. de Med. Vet.*)

CONGENITAL DIAPHRAGMATIC HERNIA IN SWINE [*By Mr. T. Biot*].—Out of a litter of nine pigs, four had died suddenly in the space of two days, presenting symptoms entirely identical. They died in full condition of health after a copious meal. The other five exhibited all the external signs of perfect health. At the post-mortem of the last that had died, the abdominal cavity was found separated from the diaphragm, but this muscle was perforated in the left side of the superior portion with an elliptical opening allowing only the introduction of the index finger. In the abdomen there was only two-thirds of the small intestines, the balance of the intestinal canal, the kidneys and the genito-urinary organs. In the thorax, there was but one lung, the right was resting on the internal face of the ribs and adherent to it; it consisted in a sheet of spongy congested tissue about one and a half centimetres thick and resembling the lungs of fowls. The four-fifths of the thoracic cavity were occupied by a normal heart, the stomach filled with food, the pancreas, liver and duodenum engaged in the diaphragmatic opening. It is probable, not to say certain, that a similar condition existed in the three other dead pigs.—(*Rec. de Med. Vet.*)

HERNIA OF THE BLADDER THROUGH THE URETHRA IN A COW [*By M. Villemain*].—While attending a cow in labor, the author observed in the vagina a reddish bosselated tumor as big as the fist, moist and attached to the vagina by a short peduncle about the size of the little finger. On each side of this tumor there were two openings from which drop by drop escaped a fluid smelling like urine; there was no urinary meatus. It was evidently the bladder which had everted through the expulsive efforts of the cow. The uterine torsion, which prevented the cow from delivering, having been reduced, the calf was extracted. Reduction of the vesical hernia was accomplished only the next day, but with great difficulty. The animal suffered afterwards from purulent cystitis, but ultimately recovered.

To the author the case is interesting, as he believes it the first on record of such accident in cows—at least the French authors say that it had been observed only in mares.—(*Journ. de Zoo-technie.*)

REVIEW OF BIOLOGY.

A CASE OF PARASITISM IN THE HORSE, THE LEPTOTENA CERVI [*By M. Meguin*].—Every one who uses horses in the country knows the flat or spider fly (*Hippobosca equina* L.). It flies little except to go from one animal to another, but walks very fast on the body of the horse, moving obliquely or sideways as crabs do; it prefers the regions where the skin is thin, covered with few hairs, such as the perineum or under the tail. When it reaches these spots, it irritates the horse, especially those that are nervous, and makes them act violently to get rid of their presence. Lymphatic animals pay little attention to them. In one horse which presented symptoms of irritation analogous to those produced by the hippoboscus, the author found an ordinary parasite of deer, the *Leptotena cervi*. The horse had been infected in a wood where that game is plenty. This is the first case observed in the horse.—(*Soc. of Biology.*)

UPON THE PATHOGENOUS AGENT OF RABIES [*By M. Puscavin*].—In a series of researches made by the author upon the nervous lesions of rabies, the author has always found special formations which he has no doubt are of a parasitic nature and which he considers as the pathogenous agent of rabies. In 21 cases examined, the constant presence of globular formations of various size, described as amylaceous bodies (Meynerl, Schaffer, Bobes, Kolesnikoff), their great number, special form, sometimes radiated, has for a long time attracted his attention and made him suspect that an intimate connection might exist between them and the cause of rabies. The parasitic character of the formation, their constant presence in the central nervous system, leave to him no doubt as to their being the pathogenous agent of rabies. It remains now to find the means to make cultures of this parasite and confirm his belief by experimental proofs.—(*Soc. of Biology.*)

BACTERICIDE ACTION OF EXTRACT OF TÆNIA INERMIS [*By MM. Picou and Raymond*].—If carriers of tænia inermis exhibit some well known troubles by their presence, they seem also to derive some benefit from them. Indeed, they rarely suffer with infectious diarrhoeas, typhoid fever; besides, it has

been thought that tuberculosis, at least the intestinal form, was rare with them. Some pathologists have confirmed this clinical fact. Recently Prof. Wurtz has reported that in Abyssinia they consider the presence of these parasites as a sign of health. It has appeared interesting to the authors, to experiment and find out if the tænia possesses bactericide properties toward various intestinal microbes, saprophytes or pathogenous. The result obtained so far is most curious and seems to confirm the clinical observation recorded before. Now, the authors are studying the action of the extract of tænia inermis on the tuberculous bacillus; their researches are not completed yet, but they can already affirm that a maceration of tænia enjoys bactericide properties for the bacillus of Koch. Another communication will state the results obtained later on.—(*Soc. of Biology.*)

TREATMENT OF MALIGNANT PUSTULE BY CAUTERIZATION WITH SUBLIMATE [*By Dr. Caforio*].—The following method is used by the author: First, the pustule is isolated. To this effect, taking hold of a fold of skin, whose apex is formed by the pustule, two incisions crossing each other at right angles, involving the healthy skin only and passing through the infiltrated tissues as far as the healthy structure underneath them. Then in the wounds thus made 40 centigrams of pulverized sublimate are smeared over, carefully avoiding to put any round the seat of the lesion. Some pains result from this application, but they subside after four or five hours. A slough is then produced, which once eliminated leaves a healthy wound, which goes on rapidly towards cicatrization. If around the anthrax infiltration a hard swelling has developed, the author, besides the sublimate cauterization, makes around the œdematous parts hypodermic injections of a solution composed of: Sublimate 0.10 centigr., sterilized water 100 grams, chloride of sodium 1 gram. For mild cases 4 syringefuls are inoculated in one day, in severe cases 6 or even 8 in 24 hours. In 20 cases treated, the fever and delirium have subsided rapidly and recovery occurred in a few days. In none of the patients were toxic symptoms observed.—(*Semaine Medic.*)

COLLEGE COMMENCEMENTS.

M'KILLIP VETERINARY COLLEGE.

The fourth annual commencement of McKillip Veterinary

College was held in the College Auditorium, 1639 Wabash Ave., Chicago, Ill., on the evening of March 29, 1900, and the following programme presented: Invocation by Rev. Chas. Brodie; baccalaureate address by Dr. E. M. Reading; and class exercises consisting of a salutatory address by D. Clinton Burnett; class poem by A. A. Adamson; class prophecy by J. B. Hollenbeck; class history by James Ragen; valedictory address by J. P. O'Conner; followed by the Secretary's report and presentation of prizes; and the conferring of degrees and the presentation of diplomas by Pres. M. H. McKillip.

The following senior students received the degree of M. D. V., viz.: S. E. Huntsberger, Burton City, Ohio; J. C. Hayes, Chicago, Ill.; Robert E. Cochrane, Milwaukee, Wis.; H. James Elliott, Brandon, Manitoba; Thos. E. Newell, Chicago, Ill.; M. J. O'Donnell, St. Clair, Pa.; James Ragen, Verona, Ill.; John E. Sommers, Buffalo, N. Y.; J. W. Rutledge, McGregor, Manitoba; A. A. Adamson, Newton, Iowa; D. Clinton Burnett, Sharon, Pa.; J. B. Hollenbeck, Salem, Ohio; S. P. Smith, Corasallis, Ore.; C. P. Liegerot, Ruxburg, Idaho; H. F. Pegan, Cochran, Pa.; A. G. Hopkins, Madison, Wis.; James Nicholson, Pipestone, Minn.; S. G. Burkholder, Denver, Pa.; L. A. Merrillat, Chicago, Ill.

The class of practitioners consisted of fourteen veterinarians, nine of whom passed the required examination, viz.: W. L. West, V. S., Bangor, Me.; Burton R. Rogers, D. V. M., Ames, Iowa; F. D. Markham, V. S., Port Leyden, N. Y.; S. P. Smith, D. V. M.; C. P. Liegerot, D. V. M.; H. F. Pegan, V. S.; D. C. Burnett, V. S.; J. B. Hollenbeck, V. S.; T. Lambrecht, V. S.

The auditorium was appropriately decorated by the junior class with flags and bunting; the attendance was large, and in the history of the college the fourth annual commencement will be recalled as a memorable event.

ONTARIO VETERINARY COLLEGE.

The closing exercises of session of 1899-1900 were held March 29. Prof. Smith opened the meeting by a short address, and Prof. Duncan read the list of graduates and prize-winners. Prof. J. H. Reed, on behalf of President Wilson of the Ontario Veterinary Association, presented the gold medal for the best general examination to C. D. McGilvray, of Manitoba. Prof. Baker, of Toronto University, gave a short but interesting address on "The Horse in War." Mr. G. A. Shaw, president of

the graduating class, then presented a fine picture of the class to Principal Smith, who responded feelingly to the indication of good feeling.

The following is a list of the graduates :

G. Harry Acres, Calgary, N. W. T.; Freeman J. Aldous, Fenelon Falls, Ont.; William P. Barnes, Brookline, Mass.; James A. Campbell, Bedford, England; W. E. Clemons, Grandville, Ohio; Henry Janes Daniels, North Adams, Mass.; Albert L. Deal, Wilmot, Ohio; John H. Dellenberger, Jun., Akron, Ohio; Dolph S. De Wolf, Grand Rapids, Mich.; Burt Kimball Dow, Cabot, Vermont; Frank E. Erwin, Fisher, Minn.; Joab Palmer Foster, Bangor, South Dakota; Robert Frame, Treherne, Man.; Joseph Freeman, Hull, England; Henry James Hagerty, Dubuque, Iowa; Charles A. Hamilton, Kingston Ont.; Oscar Hartnagl, Victoria, B. C.; L. Morey Holmes, New Orleans, La.; Lewis N. Jargo, Stoughton, Wis.; Henry N. Jeffries, Greensburg, Ind.; George L. Jermyn, Wiarton, Ont.; David S. Krull, Clarence Centre, N. Y.; Walter Keys Lewis, Anderson, South Carolina; Ernest E. Linton, Kingston, Jamaica, W. I.; James Lucas, Liverpool, England; Ashley T. Lyster, Richmond, Quebec; Milton P. McClellan, St. Thomas, Ont.; James McFadzean, Waldemar, Ont.; Charles D. McGilvray, Binscarth, Man.; John D. McLeod, Kincardine, Ont.; Charles H. McVeigh, Vars, Ont.; Charles Henry Paquin, Barre, Mass.; Arthur C. Ramsay, Exeter, Ont.; R. S. Reece, St. Ann, Jamaica, W. I.; John Arthur Renne, Stevenspoint, Wis.; Beale Atwood Robinson, Parsons, Kansas; William T. Rodgers, Toronto, Ont.; George A Shaw, Manchester, N. Y.; Edward J. Shirley, Watford, Ont.; A. Fraser Smith, Claude, Ont.; George O. Smith, Ligonier, Ind.; John McDonald Smith, Kingston, Ont.; Archibald H. Stewart, Dalesville, Ind.; H. R. Stewart, Toronto, Ont.; Jacob Van Hont, Heron, N. Y.; Stephen A. K. White, Ottawa, Ont.

GRAND RAPIDS VETERINARY COLLEGE.

The annual commencement exercises were held in the auditorium of the college building on Thursday, April 5, and a large number of the friends of the institution and of the students were present. The honorary degree of "doctor of veterinary science" was conferred upon Dr. W. W. Thorburn, Secretary of the Michigan State Board of Veterinary Examiners, in appreciation of his efforts in behalf of legislative interests, and a post graduate degree of D. V. S. upon Coleman Nockolds, V. S., M. D., a member of the faculty. The following is a list

of the graduates: J. B. Weir, Smicksburg, Pa.; T. P. Pomeroy, Freeport, Mich.; A. E. McCall, Memphis, Mich.; F. O. N. Hovey, Coopersville, Mich.; and H. L. Hickok, Grand Rapids. Drs. Weir and Pomeroy received honorable reward for high attainments in their work; Hovey and McCall received honorable mention for second and third places. In the junior class C. E. Dornheim, Providence, R. I., took first; A. B. Warrenner, Portsmouth, Ohio, second, and G. S. Thorp, third prize in anatomy. In medicine, B. F. Baldwin, first, C. E. Dornheim, second, and A. B. Warrenner, third.

CORRESPONDENCE.

IODIDE OF POTASSIUM IN PARTURIENT PARESIS AND AZOTURIA.

Editors American Veterinary Review:

DEAR SIRs:—I have given the iodide of potassium treatment both for parturient paresis and azoturia with the greatest of success.

I have tried the Schmidt treatment in three or four cases, one in particular of which I wish to speak. A thoroughbred Jersey cow, six years old, was attacked within six hours after parturition, and was seven miles from my office. I was not home when telephoned to, and it was four hours after when I arrived. I immediately applied the above treatment, and in connection I gave \mathfrak{z} iv alcohol every two hours, at first, then once in four hours; also gave physic, linseed oil, one quart, turpentine, \mathfrak{z} ij, as recommended. Repeated the treatment in eight hours, and after that gave one or two doses before perfect recovery.

Have tried the potassium treatment on four cases of azoturia, one severe case of which I will speak. A six-year-old Hambletonian mare, weight 1000 lbs., had stood in barn several days; was hitched, and attacked before had been driven one-fourth mile. She was gotten back to barn and I was immediately sent for. Mare was in extreme suffering; could not move, and the perspiration was running down to floor in many streams. I at once gave potassium iodide, \mathfrak{z} ss, and applied hot cloths to loins, one part vinegar, 3 parts water. Two men began rubbing her with straw. In thirty minutes I could see convalescence, and after four hours I repeated the medicine. The next morning mare could walk well, ate well, but showed symptoms of

congestion of lungs, but made a complete recovery.

Yours, _____ W. N. BABCOCK, V. S.

GOOD SUCCESS WITH THE SCHMIDT TREATMENT.

MARYSVILLE, Cal., April 2, 1900.

Editors American Veterinary Review:

DEAR SIRs:—Schmidt's treatment for parturient apoplexy has given me most satisfactory results. Of 39 cases I've lost 2—the first a case which had been treated by several "cow doctors" for four days; the second, a large fat cow which had lain out in a filthy corral for two days, exposed to a broiling sun, with no possibility of getting her under cover. In one case I gave two injections of kali iodide, and next day 15 grammes of lysol, from which I got quite a general systemic disturbance, which was easily controlled.

Yours respectfully, _____ A. S. WILLIAMS.

SOCIETY MEETINGS.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

Meeting called to order, Jan. 12, at 8 P. M. Mr. Horner was appointed critic. It was carried to have 200 copies of the by-laws printed. A vote of thanks was extended to Dr. Pearson and Mr. Gillingham for the books which they contributed to the library. Also a vote of thanks to the banquet committee for the faithful performance of their duties. Dr. Harger then gave a very interesting address on the subject of "Saline Transfusion." A vote of thanks was extended to Dr. Harger for this excellent address. The critic had no report to make. Adjourned at 9.30 P. M.

Meeting called to order, Jan. 26, at 8 P. M. Mr. Powell was appointed critic. The result of the election of officers was as follows: President, Mr. Cornman; Vice-President, Mr. Powell; Treasurer, Mr. Young. Executive Committee—Senior Class, Mr. Nolan; Junior Class, Mr. Walters, Mr. Watson; Freshman Class, Mr. Paget. Librarian, Mr. Bassler. We were next favored by an address by Dr. C. J. Marshall. The Treasurer's report was accepted. The critic's report was very favorable. Adjourned at 9.30 P. M.

Meeting called to order, Feb. 9, at 8 P. M. Mr. Tallman was appointed critic. Mr. Andress was proposed and duly elected to membership. Messrs. Young, Bassler and Glass were

appointed a committee to interview our several professors concerning subscriptions for the purpose of purchasing books for the library. Mr. Horner then favored the meeting with a paper on "Swine Plague and Hog Cholera." Next in order was a debate: "*Resolved*, That no stallion should be used for public service excepting such as has been examined and approved by a board of experts, the board to include a veterinarian and the examination to cover conformation and soundness." Affirmative—Messrs. Young, Colton and Glass. Negative—Messrs. Nolan, Gilliland and McClintock. The judges (Messrs. Powell, Shore, and Zollinger) decided in favor of the negative side. A general debate followed and was spirited, many taking part, as did also Dr. Pearson and Dr. Flowers. The decision of the house was in favor of the negative side. A vote of thanks was extended to Drs. Pearson and Flowers for the part they took in the general debate.

The chair then appointed Mr. Shore and Mr. Glass on the Room Committee to fill the vacancies caused by the election to office of Messrs. Bassler and Paget. Mr. Hughes still serves as the member from the Senior Class. It was carried to have the several pictures for the reading room framed. A vote of thanks was extended to the following gentlemen for the books which they contributed to the library:—Drs. Jacob, Hoskins, Huidekoper and Mr. Mayer. The critic's report was very favorable. Adjourned at 10 P. M.

Meeting called to order, March 16, at 8 o'clock P. M. It was carried to dispense with the regular order of business. The meeting was favored by an excellent address on the "Hackney Horse," by Mr. E. W. Twaddell. A vote of thanks was extended to Mr. Twaddell for his interesting and instructive address. Dr. Blount also gave a brief outline of his experience on board a transport. Adjourned at 10 P. M.

HARRY E. BENDER, *Sec'y.*

CHICAGO VETERINARY SOCIETY.

On Monday evening, March 12th, the regular monthly meeting of the society was called to order in hall 912, Masonic Temple. President Hughes presided, and twenty-seven of the members were present, all of whom aided in bringing about a very entertaining and enjoyable evening.

Dr. E. L. Quitman presented the report of a special committee instructed to wait upon officials of the Telephone Co., and ascertain why veterinarians are not granted the same privi-

leges that physicians are in the free use of public instruments. The Telephone Co. allows physicians free use of public telephones at the request of the storekeeper and as payment of the company to drugstore proprietors for the space occupied in the store.

Dr. James G. Fish presented the following paper on

"POST-MORTEM INSPECTION OF CATTLE."

"Instead of directing your attention to the post-mortem evidence of the presence of disease in cattle, I have concluded that it might benefit some here to be more fully informed as to the methods of conducting post-mortem examination now in use at the Union Stock Yards.

"In accordance with the plan I shall briefly outline a day's work in post-mortem.

"The killing force is divided so that each man has his own particular part of the work to perform.

"There will be one knocker, three shacklers, one to hang off, two headers, one sticker, two switchmen, one man dropping cattle, one to place cattle on the floor, five leg breakers, two foot skinners, six floor men to skin bellies, one brisket sawer, one belly washer, one man elevating cattle, one man skinning hocks, two rumpers, two shank scrubbers, one shank trimmer, one shank wiper, three fell beaters, two backers, one back washer, two gutters, three tail sawers, four splitters, one tail puller, four hide droppers, one neck splitter, forty-three men wiping and washing cattle before entering the coolers, sixty men doing all around work, *i. e.* stripping muscle from head, cleaning casings, etc.

"This force will kill 114 cattle per hour. All cattle before reaching the abattoir, undergo an ante-mortem inspection. When the animal has so far advanced as to reach the gutter, the inspector stands behind or a little to one side of him, and notes the contents of the abdomen, the thoracic cavity and the state of flesh of the animal.

"If everything is normal and the animal in good flesh he passes on to the next carcass, which is only a few feet away.

"If the conditions are not satisfactory he immediately places a tag of identification on each side of the carcass and a coupon on the internal organs, head and caul fat.

"They, with the carcass, are put to one side, in a place provided for the same, for future inspection at his leisure.

"As these cattle are killed at the rate of 114 per hour, some may think it impossible to give a fair and just inspection, but

as a man who continually uses a knife becomes an artist at his particular branch of work, so does the inspector become an artist.

"By long practice and seeing so many healthy animals killed, he becomes expert in detecting the slightest deviation from normal.

"Some of you would, no doubt, be surprised at the quickness of a butcher to detect the slightest change from normal, still he may not know what the ailment is.

"When a carcass is finally passed on and condemned the inspector has it cut up into suitable pieces for tanking and goes with it to the tank and places a seal on top and bottom of the tank. Steam is then turned on for sufficient time to effectually destroy it for food products.

"It may be interesting to notice the number of cattle condemned in Chicago during the last six months and the diseases for which they were condemned, so I have prepared the following list that can be depended on as being approximately correct :

Disease.	Number.	Weight.
Pneumonia	23	11,215
Jaundice	1	492
Uræmia	1	600
Actinomycosis	115	55,932
Metritis	5	2,432
Bruised Carcasses	52	25,085
Leucaemia	1	400
Pleurisy	13	6,955
Dead in Pens	8	4,651
Malignant Tumors	2	1,034
Enteritis	6	3,126
Bruised Parts		9,116
Peritonitis	32	17,283
Emaciation	63	24,647
Peritoneal Abscesses	3	1,322
Gangrene	3	1,790
Hæmatodes	21	9,690
Cancer	11	4,246
Pyæmia	5	2,785
Septicæmia	3	1,768
Ascites	2	1,267
Pulmonary Abscess	2	1,075
Nephritis	1	400
Tuberculosis	668	331,887

"Making 1041 condemnations for the six months ending December 31st, 1899, of which 64.17 per cent. were for tuberculosis.

"Rather than describe any particular disease on the post-mortem evidence of it, I have depended on the discussion to develop the points of greatest interest, and will now pass on to consider a condition not infrequently encountered in cattle and the cause of much trouble to the inspector.

"I refer to emaciation, which Gould defines as 'loss of the fat and fullness of the flesh of the body.' My own idea of emaciation is that it is characterized by extreme poverty of the animal, simple atrophy in which the fat disappears from the subcutaneous adipose tissue, a diminution takes place in the size of the tissue elements, and the replacement of the once healthy tissue by drops or molecules of an oily nature. When much tissue is affected, the change can be readily distinguished with the naked eye, by the yellowish-white appearance of the carcass and by a diminution in consistency and elasticity. The largest percentage of emaciated cattle is found in cows formerly used for dairy purposes, that have probably had their milking capacity forced for four or five years. At the end of this period the flow of milk diminishes and soon the beast is turned out to grass, or put on a less nutritious diet, and although allowed to go dry, she seems to have lost the power of assimilating food for flesh or fat producing purposes. She becomes thinner each day, and at last is shipped for slaughter where it is sure to bring some sort of a price. The dairyman or any of his neighbors would not be guilty of killing any such animal for food for themselves or families, but he sends it where he thinks it will be overlooked in the great number that daily arrive at the various large markets.

"I have found it one of my most difficult tasks to condemn a cow for emaciation when there are no other symptoms of disease.

"The shipper or packer is rare who will gracefully acquiesce in condemnation for such a cause. The question is thus continually forced upon the inspector, 'What is the degree of emaciation that renders cattle unfit for human food?' Anything that will enable him to answer this question to his own and the public's satisfaction he will welcome as a boon, and the discussion that will to any extent develop this point will be of benefit not only to our society but to the whole population of this country, whose servants we are."

Dr. Fisk's paper was well discussed by all present, it being prolonged and very interesting.

Dr. A. C. Worms told how worthless he considered our

State Veterinary Law, denouncing it as a piece of legislation got up for the benefit of a few "grafters," which provoked an extended discussion.

JAMES B. CLANCY, *Secretary*.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order March 7, at 8.30 o'clock by President Robertson. After roll-call, reading of minutes of previous meeting, etc., by the Secretary, and the report of Board of Censors had been heard through Chairman Clayton, a paper on "Docking"* was presented by Dr. Ryder. This paper, which was carefully prepared so as to touch upon all phases of the operation, was productive of a very animated and interesting discussion. A vote of thanks was offered the essayist from the association, through Dr. O'Shea, and seconded by Dr. Bell. Dr. O'Shea reported progress from the Legislative Committee. Dr. Bretherton, chairman of the Prosecuting Committee, had no report to offer at this time, but desired a communication to be read by the Secretary, relative to an advertisement from a Brooklyn non-graduate. After the reading, the President directed the matter to be referred to the Brooklyn member of the Prosecuting Committee, Dr. Goubeaud. Dr. Bell, Chairman of Ways and Means Committee, reported a paper for April meeting by Dr. Hanson. Moved and seconded that the reports of the several committees be accepted. Carried. Moved and seconded that the meeting adjourn. Carried.

The meeting was called to order April 11 at the usual hour in the lecture room of the New York-American Veterinary College, President Robertson presiding. Following the usual business proceedings of the association, Dr. H. D. Hanson gave an extemporaneous discourse, upon "What Constitutes a Spavin in an Examination for Soundness." The doctor stated that his principal object in offering his remarks upon this subject was to provoke a discussion, and in this he was decidedly successful, this practical everyday subject seeming to appeal to every one present. Dr. Delaney, the association wit, stated that some man from Jersey had a few days previously found a horse in one of our New York horse marts with three spavins on one leg. Professor Schwarzkopf asked whether saddle horses were more subject to spavin than driving horses. The essayist

* Published in April REVIEW.

stated that his practice brought him in contact with too few saddle horses to be able to draw a conclusion. Dr. Ackerman stated in reply to Professor Scharzkopf's question, that his connection for a number of years with a riding academy, as its veterinarian, had taught him that this condition was not prevalent among that class of horses, he having treated but very few cases of spavin in the academy.

Legislative Committee, Dr. Shea, Chairman, reported that his committee would be unable to report until legislature adjourns, but at the instigation of Professor Schwarzkopf offered the following resolution to be sent to Senators Platt and Depew, Washington, D. C.:

WHEREAS, the United States is the only civilized government in the world whose army has no veterinary corps or properly equipped veterinarians for the care of its public animals, and for the inspection of meat consumed by its soldiers;

Therefore: We, the Veterinary Medical Association of New York County, do most respectfully ask you, our representatives in the Senate, to request the Secretary of War and your colleagues in the Senate to establish a veterinary corps in the U. S. Army worthy of our great country.

The above to be signed by the President and Secretary of the association, sealed with the association's seal, and forwarded to Senators Platt and Depew.

The Committee on Prosecution having nothing further to report, President Robertson reported in the absence of the Ways and Means Committee that Dr. Lellman would present some specimens at the May meeting. Moved and seconded that the meeting adjourn. ROBERT W. ELLIS, D. V. S., *Secretary*.

WESTCHESTER COUNTY VETERINARY MEDICAL ASSOCIATION.

The society held a special meeting in Music Hall, Yonkers, on Tuesday evening, March 27th, to which were invited the various boards of health throughout the county, the medical profession and the public in general.

The object of the meeting was to lay before the boards of health and the public the necessity of a system of milk and meat inspection throughout Westchester County, also the many reasons why a qualified veterinarian should be employed by each board of health in the county. A very nice audience of about five hundred were present and took great interest in the subjects. Martin J. Tewey, D. V. S., president of the society, opened the

meeting with an address of welcome to the audience, and stated the object of the meeting.

Charles H. Martin, D. V. S., then read a paper entitled "Milk as a Factor in the Causation of Disease," and was followed by Prof. E. A. A. Grange, M. D., V. S., who made a very good address, entitled "The Relation of Tuberculosis in Animals to Consumption in Man," and certainly did justice to the subject.

Dr. Rowland G. Freeman, M. D., then gave a very interesting address, entitled "The Importance of Expert Direction of Dairies for the Production of Clean and Safe Milk." His address was illustrated by a large number of very interesting lantern slides, making a very novel feature of the evening.

Prof. Charles A. Doremus, Ph. D., M. D., then came forward and looked after the good of the veterinarians and his former pupils with a grand, good address, entitled "The Relation of the Veterinarian to Inspection of the Milk Supply."

The Hon. James Wood, of Mount Kisco, took up the subjects from the farmer's standpoint, and certainly handled them to perfection, making an exceedingly good address.

Prof. Edward F. Brush, M. D., then read a paper entitled "Tuberculosis and Tuberculin in the Dairy," which concluded the program of the evening. Whereupon the speakers of the evening and the members of the society adjourned to the Hotel Wynnstay to partake of a lunch that had been prepared for the occasion.

Upon the whole the meeting was a grand success, and the public as well as the veterinary profession will undoubtedly be benefitted by it in the near future.

I regret that I am unable to send the verbatim speeches of the different speakers, as they were certainly very good and right to the point. W. B. MOOREHOUSE, D.V.S., *Secretary*.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

As arrangements are developing for the approaching meeting at Detroit the wisdom of the Executive Committee in selecting that city as the scene of the next great national gathering of veterinarians is becoming apparent to the most casual observer of the trend of events. The prospect for a large attendance is very flattering, since the veterinary associations of Michigan, Indiana, Ohio, and Ontario have resolved to take an active interest in and attend the meeting at Detroit. It also seems probable that large delegations will attend from other

States. The Local Committee—consisting of such enthusiastic members as Drs. Brenton, Hawkins, and Dunphy—assures us that a most excellent clinic may be had, as there is unlimited material, and that the veterinarians of that city will take an active interest in making this feature of our meeting a grand success. Those of the membership who are particularly interested in surgical procedure should volunteer to demonstrate a large variety of operations representing professional advancement in surgical art.

The Secretary wishes the REVIEW to suggest to members the advisability of promptly notifying him of their willingness to contribute to the programme of this meeting. He says: "The time is certainly at hand when the value of our meetings must be duly appreciated and it be counted a privilege to be sought after to have the pleasure and honor of presenting a paper before this scientific body."

NEWS AND ITEMS.

DR. W. C. HOLDEN, Delphos, Ohio, has established a well appointed hospital in connection with his practice, with operating table and other modern appliances.

DEATH OF DR. M. J. TEWEY.—As the REVIEW goes to press we learn with deep regret of the death of Martin J. Tewey, D. V. S., of Irvington-on-the-Hudson, President of the Westchester County V. M. Association, a graduate of the A. V. C., and a practitioner of note. Pneumonia was the cause.

It is estimated by competent authority that under the new veterinary law of Iowa there will be between 400 and 500 registrations, 150 of whom will be graduates. The bill requires that the board of examiners be appointed within sixty days after its enactment (April 2d).

A NEW SLING.—Dr. S. R. Howard, Hillsboro, Ohio, writes under date of April 2: "I was down in the hills yesterday, and while in the neighborhood I went to see a new kind of swing for horses. Big mare had broken metacarpal. They bored four holes and let the mare's legs through. You can imagine the rest. She lived four days."

A RETREAT FOR AGED HORSES.—An association is forming in Brooklyn, N. Y., with the object of securing funds with which to purchase a farm and maintain an asylum for old or invalid equines who, having served a life of usefulness, may spend their remaining days in comfortable idleness, rather than to be

forced to undergo the hardships of the peddler's wagon or other such labor, which is usually accompanied by insufficient food and often much brutality. The names of the first officers are not prominent in the horse world, and we fear but little will come of the effort.

THE IOWA VETERINARY LAW PASSED.—Dr. W. A. Heck, of Maquoketa, Iowa, writes: "I presume you have already been informed of the passage of our bill regulating the practice of veterinary medicine in Iowa. We succeeded in getting it through the senate with some amendments, and while it is not what we had hoped for in all ways, we are jubilant over the victory, and feel that we have made a good start. It seems the vital part of the bill (the provisions for a board of examiners) was not altered, and in this we have as good a clause as most States now possess." [The bill as presented was published in full in the March REVIEW.—EDITOR.]

PHENOMENAL SALE OF HORSES.—The first spring consignment of harness horses by Messrs. Tichenor & Co., was disposed of by auction at the American Horse Exchange, New York, on Wednesday, April 18, and we are safe in the statement that the prices obtained were far in excess of any similar event in the history of this country, and perhaps in the world. The horses were for the most part trotting bred, many standard, registered, and with records or fast trials; but they were not toffered so much for the quality of speed as for all-around action, conformation, and manners. They were trained to the minute, perfectly bitted, and could "go fast and high." It transpired that they not only went high in action, but also in price, for "The Turk," a stag of grand conformation and action, with a trial of 2:17 $\frac{1}{4}$, brought the unprecedented price of \$7800, and from this they ranged downward, thirty-nine head averaging \$1200, outstripping all records. A few days later the trotting-bred coach horse, Red Cloud, was sold privately to Thomas W. Lawson, of Boston, for \$10,000.

A PARTURIENT FREAK IN A BITCH.—There came within the observation of the junior editor of the REVIEW a month or two ago the following circumstance: A hybrid fox-terrier bitch, about three years old, was pregnant, but what kind of dog had served her was unknown, as she had the liberty of the streets of Brooklyn at all times. When the close of gestation was near at hand, she sought a well-bedded unused stall in the stable of her owner in which to undergo the parturient act. On Monday morning the stableman noticed that she was very uneasy,

and at half past six that morning she gave birth to a dead pup, following this up at various periods during that day and evening by similar occurrences until on Tuesday morning there had been born five dead pups. Apparently the entire contents of the uterus had made its escape and the bitch appeared to feel as well as could be expected under such circumstances. Nothing more was thought of the matter until she was again discovered in labor on the following Sunday morning, and while the stableman stood watching her efforts a live male pup was born, which lived and thrived, and is as vigorous and normal as it is possible to be. Was this a case of double fecundation?

EPICARIN.—Epicarin, $C_6H_3:COOH:OH.CH_2C_{10}H_6OH$, is a condensation-product of creosotinic acid and beta-naphtol. In the ordinary form in which it is found in the market, it forms a reddish-yellow, strongly acid powder, melting at $199^{\circ} C.$, and readily soluble in alcohol and in ether. It forms easily soluble, neutral salts. According to Frick and Muller (*E. Merck's Bericht*, 1900), epicarin is but very slightly toxic, and is a good remedy for scabies in dogs, as it quickly checks the itching, and rapidly removes the affection when contracted by a human being. Though epicarin does not possess the power to kill the acarus, to the same degree as do carbolic acid, creosote, tar, lysol, creolin and iodine, its application is said to be far pleasanter. In oleaginous suspensions, or mixed with green soap, epicarin is too weak for the treatment of scabies on household animals; it should be applied in alcoholic or ethero-alcoholic solution. A solution which is recommended is the following: epicarin, 10 gm.; castor oil, 10 gm.; alcohol, 100 gm. This should be applied to the skin by means of a brush lightly drawn through the hairy coat. It is reported that these applications, should they even be licked off by the dog, are entirely free from any disadvantages, and, made every other day, rapidly effect a cure. Prof. Kaposi states (*ibid.*) that epicarin is also effective in cutaneous diseases in human beings, and that its action, resembling that of beta-naphtol, perhaps renders it of special benefit in the treatment of children. He recommends the epicarin to be used in the form of a 10 per cent. ointment with any suitable base, or in solution with alcohol and glycerin.—(*Merck's Report.*)

LEGISLATIVE BILLS IN NEW YORK.—Chairman Wm. Henry Kelly, of the Legislative Committee of the N. Y. S. V. M. A., informs the REVIEW that Assembly bills Nos. 567, 913 and 2526 have become laws. The former provides that "any person

who practiced veterinary medicine and surgery as a profession in this State for a period of ten years prior to May 9, 1893, and who was eligible to register according to the provisions of chapter 313 of the laws of 1886, but who failed to register in the veterinary medical register in the county in which he so practiced, may, on unanimous recommendation of the State board of veterinary medical examiners, receive from the regents a certificate which shall entitle him to register as a veterinary practitioner in the county of his residence or practice at any time within two months after the passage of this act." The latter bill furthers the provision of the former by modifying the licensing clause to admit those provided for in the foregoing amendment. The Governor vetoed Senate Bill 899, 987, which provided that "any person who matriculated in a veterinary medical school prior to Jan. 1, 1895, and who received his degree therefrom prior to Jan. 1, 1897, may on recommendation . . . register as a veterinary practitioner in the county of his residence," etc.

EMPIRICISM [*From the Horseshoer's Journal*].—During the past month a communication was received at this office from a well-known veterinarian, who makes complaint against the practice of some horseshoers invading the domain of veterinary medicine, when their qualifications are not such as to entitle them to legitimately assume such practice. Says our correspondent, who, by the way, does not write for publication, but rather as a slight reminder, that the practice which he refers to bears the stamp of rank empiricism, "What disappoints me most is that some of the parties whom I have in mind were careful to attend a course of lectures which was specially prepared for horseshoers by qualified veterinarians, whose admiration for men who were endeavoring to improve their status in society was of that nature that made it a pleasure for them (the veterinarians) to lend what assistance they had at their disposal to the end of enlightenment, an action which I am convinced called for a steady recognition at the hands of those benefited, instead of the ingratitude which some of those referred to have an undue quantity of." We are glad that this question has been brought to notice, not that we will now engage in any lengthy discussion of it, but because, like everything else, a starting point must be reached, and in no better way can a satisfactory adherence to principles be germinated through a community than by a thorough and enlightened discussion of the rights or wrongs which attend such. If delved into, this ques-

tion should produce some rare examples of wantonness, possibly on the part of both sides to it, but most certainly on the part of very many horseshoers, whom we are well aware are guilty of the charges which the estimable gentleman who complains lays against them. For ourselves, we have no defense whatever to make for the quack horse doctor, for such the empiric can only be dubbed, who will invade the precincts of a profession which has taken years of self-sacrifice and a constancy of effort on the part of earnest and devoted men to build up to a place within the realm of sciences which only high-minded knowledge, secured at a great cost of honest endeavor, fitted it for recognition. Invaders of the kind referred to are as injurious to the horseshoeing profession—aye, more so—than they are to that of veterinary medicine. Simply stated, they are “double,” their actions going to show that they are falsely courting patronage by an indecent and dishonest display of talent, which they herald on glib tongues more after the manner of a horse jockey than that of a professor of real knowledge. Such actions the National Association of Master Horseshoers has long since disapproved of, if not condemned, and they who are guilty stand as such reproached by a justice-loving band, whose desire it is to do unto others as it would have others do unto it. The veterinary profession on our side of the case need have no fear that the call which the National Association have long since issued to its members by the adoption of a resolution condemning empiricism will ever be revoked. The sign will always be hung out as a guiding mark to members to keep within the bounds where true unity and clean skill will find plenty reward and where vulturelike practices of any kind or description will continue to be frowned on by men whose regard for station is measured only by the rule of justice.

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